

American Forests *and* Forest Life



January, 1926

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The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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AMERICAN FORESTS AND FOREST LIFE brings New Year Greetings to its readers with this issue in a new cover of Forest Green. We know you will like the simple beauty and restfulness of its background, and that the scenes which come to you every month through the window that looks into the forest will hold and quicken your interest in Forest Life. Contributions of photographs suitable for these monthly inserts will be most welcome. Editorial and Publication Office, The Lenox Building, 1523 L Street N. W., Washington, D. C.



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The New Public Lands Controversy

By HENRY S. GRAVES

Former Chief, United States Forest Service

A NEW public lands controversy is looming up that promises to rival the fight over the establishment of the forest reserves in the nineties, the Pinchot-Ballinger trouble in 1910, and the struggle over the Alaskan forests three years ago. This time it is a problem of regulating the grazing of livestock on the National Forests. The particular question that precipitated the present controversy relates to the fees charged by the Government for the privilege of grazing cattle and sheep on the National Forests. This does not impress one as a cause for a nation-wide conservation fight such as we seem to have ahead of us. Under the surface, however, there is a real issue and one of vital national concern. The amount of the grazing fee on the National Forests is relatively a minor matter in the long run. The fundamental question at stake is whether the National Forests are to be retained under the full control of the Government with the right to adjust the uses of the lands for grazing or other purposes in accordance with the interests of the public. The stockmen desire and are demanding a system of leases which in reality

would amount to prescriptive rights or easements, something that cannot be permitted without jeopardizing the primary objectives of the National Forests. They seek similar rights on the unreserved public domain. Everyone should bear this in mind when he reads about the controversy over the question whether the grazing fees on the Forests shall be increased on an average of 75 percent to bring them measurably nearer the real commercial value of the range privileges.

A committee of the United States Senate has been making an investigation of the public lands and their administration. This inquiry is presumed to cover the handling of the public domain, the National Forests and Parks, and other classes of Government lands. The investigation was, however, the result of a vigorous protest of the western stockmen against the proposal by the Forest Service to increase the fees for grazing on the National Forests and the Senate Committee has given chief consideration to grazing problems. The proposed new schedule of charges for grazing privileges has been made the occasion for a general attack on the

Forest Service by the stockmen, who are endeavoring at the same time to lay the ground-work for legislation which if successful would go far to undo much of what has been achieved in forest conservation during the last twenty-five years.

A controversy of this kind is inevitably confusing to the general public which for the most part has little knowledge of the public domain and National Forests and still less knowledge of their relations to the problems of producing livestock. Many people do know, however, that the public has suffered unmeasured losses through the abuses of the land laws, through fraud, and lax administration of the natural resources owned by the nation. They are likely to prick up their ears when they hear that there is another drive upon the National Forests which if successful would place them in jeopardy.

The Western Grazing Lands

The problem brought before the country in the present controversy involves the productive service of a vast area of land in the West, the welfare of thousands of people engaged in stock-raising and agriculture, the protection of watersheds under the most critical conditions existing in the country and the prevention of serious injury to the forest reservations owned by the whole nation. We have to do with the semi-arid portions of the country lying westward of about the hundredth meridian, the region in former days known as the great cattle ranges. The region is beyond the limit of the rich corn and wheat belt and is for the most part unsuited to crop-raising except under irrigation. The lands are naturally suited to the grazing of livestock. The very conditions that unfit them for agriculture adapt them to grazing. Here the grasses are cured long before the frost and they retain the sugar, starch and albumen that make them highly nutritious throughout the winter. In the early days the forage was so abundant that it was not necessary for the cattlemen as now to provide feed for the winter but the stock rustled on the open prairies finding ample feed where the snow was thin or swept away by the winds.

Formerly all these lands were publicly owned, subject only to local grants in the Southwest and to recognized rights of Indians. They were free for the use of all comers. The settlement and development of agricultural lands is a comparatively slow process, though the occupancy of the prairie region west of the Mississippi under our liberal land laws was accomplished in an astonishingly short period. But it required only a few years for the cattle drovers moving westward from the prairie region, eastward from California and north from Texas to spread over the public lands, even working up into the mountains which afforded excellent forage for summer grazing.

Competition for the Range

As long as the livestock business was conducted on a relatively small scale there was no difficulty in regard to the use of the open lands, for there was plenty of public

range for all. When, however, the industry was organized on a large scale and there were individuals owning herds of twenty or thirty thousand head of cattle or flocks of one hundred thousand sheep, new problems were introduced which not only had a large influence on the development of the West but were a disturbing factor in the administration of the public domain. It was then that the herds of different owners began to crowd each other, that portions of the range were overgrazed, and that disputes arose in regard to the use of the land. Small owners found their cattle crowded off the range by large owners and the question of the control of the public ranges and frequently the existence of monopolies of large areas of land by a few companies became matters of common complaint.

Conflict Between Cattle and Sheep

It was about 1890 that the development of the sheep industry assumed substantial proportions. This was due in part to the great losses to the cattlemen in 1887 and 1893. It was due also to the over-crowding of the range and the difficulties of controlling the movements of cattle. It was customary to handle sheep in bands of from 2,000 to 3,000 head. They were herded together and hence under constant control. They could be moved here and there wherever grass could be found and they could utilize many ranges unsuitable for cattle. This was particularly true in the mountains where some areas were unsuited to cattle grazing on account of poisonous weeds. Moreover sheep could be taken back into the very high ranges which were not suitable for cattle.

The development of the sheep industry brought in a new factor, a distinctly competitive one, into the range problem. Unscrupulous sheepmen could within a few weeks sweep over a cattle range, practically wiping out the forage, and then move on to new fields. The intrusion of sheep upon areas used for cattle was fiercely resented by the cattlemen. Inasmuch as the public range was open and free to all, there was no law which could be appealed to because all had equal privileges. Strong-arm methods were therefore frequently resorted to by the cattlemen to prevent the encroachment by the great bands of sheep on what was regarded as their rightful grazing lands.

Over-stocking the Ranges

Such were the conditions in the eighties and nineties. Not only were the cattle and sheep grazed in excessive numbers on the plains but also in the mountains well into the forest belt. The mountains constituted the summer grazing grounds. In a large part of the Rocky Mountains and of the eastern slope of the Pacific ranges the forest is rather open with a great deal of forage under the trees and in the open parks, the meadows and the grassy openings on the slopes. Here were ideal conditions for summer grazing. The cattle were brought in as soon as the disappearance of the snow permitted and occupied the areas within easy access to the mountain streams and water holes. Sheep were distributed



LAMBS GRAZING ON A MOUNTAIN TOP IN ONE OF THE NATIONAL FORESTS IN THE WEST. MORE THAN SIX MILLION SHEEP AND GOATS FIND SUMMER FEED ON THE NATIONAL FORESTS

even more widely. They followed the receding snow line progressively into the higher areas. Less dependent upon water, if there was succulent grass and herbage, the sheep could be taken to areas beyond the reach of cattle, but they were also often crowded upon the cattle ranges to the discomfiture of the cattlemen.

The over-grazing of the plains and lower slopes greatly increased the use of the mountains in summer. Stock was driven many miles to the mountains because the range on the lower lands was exhausted. The cattlemen were soon forced to feed their cattle in winter because the grass that formerly served as winter forage was consumed in the summer. By 1890 the injury to the western stock ranges was very marked. The carrying capacity had been greatly reduced, and evidences of serious erosion were to be seen everywhere. The thinning out of the vegetation exposed the soil to washing, deep gullies were formed that became wide arroyos, and quantities of earth and

rubble were swept down upon areas of good arable land. This occurred in the open rolling plains. Still worse was the damage in the mountains where the rainfall was heavier and torrential in character.

On the high meadows the cattle were allowed to crowd upon the portions near the streams, tramping out the grass and destroying the protective willow and brush along the



THE TWO LOWER PICTURES SHOW THE EFFECTS OF OVER GRAZING AT THE HEADWATERS OF MOUNTAIN STREAMS. IN THE CENTER PICTURE MAY BE SEEN SMALL EROSION GULLIES BEGINNING ALMOST ON THE TOP OF THE MOUNTAIN AS A RESULT OF DENUDATION OF THE GROUND, AND GROWING LARGER AS THEY DESCEND THE SLOPE. THE BOTTOM PICTURE SHOWS WHAT HAPPENS IN THE CANYONS MILES BELOW WHEN FLOOD WATERS RUSH DOWN THE GULLIES, GATHERING STRENGTH AS THEY DESCEND, CARRYING TONS OF SOIL AND HUGE ROCKS WITH THEM, AND DESTROYING PROPERTY THAT MAY BE IN THEIR PATHS





A SCENE ON THE RANIER NATIONAL FOREST, WASHINGTON, SHOWING CATTLE WHICH HAVE BEEN
ROUNDED UP IN A HIGH MOUNTAIN MEADOW

water courses. Storms scoured out the cattle trails and greatly increased the flood waters. The damage by sheep was still worse. The term "sheeped off" as applied to mountain land had a very real significance. It was the custom to establish a headquarters when the sheep were bedded down at night. Each day they were driven out to fresh forage, and for miles about these points the ground was denuded of its vegetation. What was not eaten was cut by the sharp hoofs of the sheep. Great clouds of dust marked the passage of a band of sheep that left a trail of bare ground stripped of its protective cover. These were ideal conditions for erosion when the storms came. The pulverized soil was easily washed and was the material that filled many an irrigating canal and reservoir. Young seedlings of forest trees were destroyed in the path of the sheep bands, ripped up, trampled, and broken; and when the sheep had scant feed as often happened with the progressive over-grazing they nipped off the small seedlings, crippling or killing the plants. Is it any wonder that the irrigators protested against sheep grazing and that the people of California in the early days of the forest reserves insisted that sheep grazing in the public forests of that state should be prohibited?

Establishment of the Public Forests

The establishment of the forest reserves introduced a new factor in the grazing situation. These areas were set aside under the authority of Congress granted in 1891. Their purpose was to provide for the production of timber and to protect the slopes and the sources of water. Inevitably the areas required for these public purposes included a large part of the summer grazing lands of the West. With small beginnings the area of reservations was progressively increased until the system of National Forests now comprises in the United States,

exclusive of Alaska, about 135 million acres. Approximately 90 million acres of this vast estate carries some forage suited to the support of live stock. A considerable part of this range had, prior to its reservation, been used by stockmen, chiefly for summer grazing.

As soon as the forest reserves were placed under administration the Government had to face the problem of controlling the grazing which under the current methods of handling stock had been demonstrated to be injurious to forest perpetuation and a menace to the interests of water users.

Opposition by the Stockmen

The inauguration of a system of grazing control was brought about in the face of the most intense opposition of the stockmen. In the early days it was alleged that there was the same right to graze stock on the forest reserves as on the public domain. The question of the right of the Government to exclude sheep had to be tested in the courts before trespass could be halted. Considerable progress had been made toward a reconciliation of the industry to the idea of regulated grazing when the Forest Service in 1906 established the principle of a fee. This plan was met with vigorous protests. Again the legal right of the Government to charge for grazing privileges was challenged and the courts were called upon to pass on the question. The final decision was made by the Supreme Court in 1911 definitely supporting the authority of the Forest Service to charge for grazing privileges on the National Forests.

The National Forest System Proves a Success

Meantime the system of regulated grazing was proving its value to the local stockmen. Progressively thousands of permittees were seeing its benefits and giving their hearty cooperation to the Forest Service. Some of the livestock associations continued, however, to criticize and

to pass adverse resolutions. The success of controlled grazing was expressed in the improvement of the range, the widespread reduction of damage by erosion and floods, the condition of stock ranging the forests, the certainty on the part of the grazing permittee that he would be protected in the use of the range, the actual increase in the value of ranch property, the improvements on the forests built by the Government in connection with water supplies, roads and trails, drift fences and the like, the work of eliminating poison weeds, the destruction of noxious vermin and predatory animals, and the protection given to the small stockman. All this gave stability to the industry and reacted to sound development. The Forest Service brought the permittees into the administration by a system of cooperative or advisory boards. Over 600 such boards have been in existence for some years. Through this system it has been possible to establish regulations for the improvement of the breed of stock, to introduce proper salting of cattle and to carry forward many cooperative projects.

The Problem on the Public Domain

The grazing on the public domain is in many ways closely related to that on the National Forests. As

already indicated the forests provide chiefly the summer range for stock. Many persons using the open public ranges are also permittees on the National Forests. In many cases portions of the public domain if retained permanently in public ownership, should be administered in conjunction with parts of the National Forests, in order to secure the best economic use of the public lands. Stockmen are embarrassed because of the lack of a controlling agency to allot the unreserved ranges and to prevent over-grazing. Stockmen have for a long time acknowledged that these unreserved lands should be brought under some kind of control. As long ago as 1905 recommendations were made by the administrative departments of the Government for legislation looking to this end. The attempts to pass such a measure have all failed. A special effort was made in 1907 and again in 1911, 1912, and 1913, with some degree of support from the stockmen. While the stockmen have very generally urged some kind of control over the grazing on the public domain they have not given whole-hearted support to the application of a system analogous to that in effect on the National Forests. The opposition, or rather the lack of support necessary to secure the legislation has been and still is due in large measure



A STRIKING PICTURE SHOWING THE EFFECT OF OVER GRAZING ON REFORESTATION, TAKEN IN THE COCONINO FOREST, ARIZONA. THE AREA TO THE LEFT OF THE FENCE HAS BEEN HEAVILY GRAZED BY CATTLE, HORSES AND SHEEP, WHILE THAT TO THE RIGHT HAS BEEN GRAZED ONLY BY CATTLE AND HORSES, WITH THE RESULT THAT A GOOD YOUNG FOREST OF YELLOW PINE HAS BEEN ABLE TO SECURE A FOOTING

to the large stock interests. There is evidence that the small grazers for the most part would welcome an extension to the public domain of the National Forest system.

The real reason why there has been no legislation to protect the open public range is that a strong element in the business desires a system of grazing rights, such as they are now asking for on the National Forests. Instead of a leasing law Congress passed in 1916 the so-called grazing homestead act that permitted the acquisition of 640 acres by a homesteader on land classified as suited to the purpose. This law to a large extent has proved a failure. It has not led in any appreciable degree to settlement. Ultimately the lands pass to those stockmen who are in a position to purchase them. It has without doubt increased the cost of stock raising, encouraged speculation, and by alienating from the Government many scattered areas made more difficult an orderly control of those lands which should be handled in units of considerable size.

The Grazing Fee

The policy of charging for grazing privileges on the National Forests is in certain ways quite comparable to charging for timber. The value of the forage should be reached by a different process than that of timber, but that the charge should be commensurate with the commercial value is as sound as in selling timber. Congress has authorized the sale of timber to bona fide settlers on the basis of cost of administration where this timber is for home use only. If a local settler wishes to buy National Forest timber to sell, he must pay full value. In the same way the Forest Service allows free use of the range to settlers for their farm animals, their horses and milch cattle. But where they graze animals for sale and profit, they must pay the fee. But heretofore that fee to the settler and the big stockman owning thousands of animals has been far below what these same men willingly pay for the privilege of grazing on leased private lands.

If the Forest Service is to be criticized at all in the matter of the grazing fee, it is that the Government has been so lenient and too slow to raise the fee, even though there have been many facts to justify deliberateness in taking the final steps to place the charges on a clear-cut basis of real value rather than to continue a system of industrial subsidies.

It should be added that the purpose of increasing the grazing fee is not essentially to increase the revenue to the United States Treasury. The purpose of the National Forests is not to secure financial returns. It is, rather, to secure the greatest possible public benefit from the productive use of the land. In grazing the objective is to make the forage contribute to the furnishing of products needed by the country, to sustain local industries and to build up the communities dependent on the forest resources, all this without jeopardizing the primary purposes of the National Forests. A subsidy to the grazing permittees would react to impair rather

than stimulate the best effort to develop the methods of grazing practice. The nation may dispense with possible revenue in order to secure general public benefits, but the nation properly may insist that when private individuals are given natural resources to use for commercial purposes that they compensate the Government for them on a proper valuation. No other principle can or will be accepted by the people of the country.

Need of Effective Control

Constant and vigilant control of grazing on the National Forests is absolutely necessary to prevent injury. Generally speaking, the Forest ranges are fully stocked. So long as the grazing is well handled there is no injury to the forests and range. The moment there is a let-up in the efficiency of the supervision and inspection of the grazing, damage begins. If under pressure or through faulty judgment stock is allowed on the forest too early in the spring, if the stock is not properly distributed, if through trespass or inefficiency of forest officers too large a number of animals are permitted on a given range, the forest, range, and watershed are placed in jeopardy. Under proper and constant control stock grazing on the National Forests is a public benefit. If that control is withdrawn or weakened grazing is a destructive agency, and dangerous to the public welfare. Full utilization of the forage on the public forests is therefore possible only with a system of control like that now in effect and so elastic as to permit constant adjustment of the grazing to existing conditions on the ground. If Congress should yield to the pleas of the stockmen now made to take away the power of the Forest Service to govern the use of the lands as an administrative matter, the public interests would require a great reduction of stock and in places the complete exclusion of sheep. I am confident that public sentiment would swiftly demand such action, just as in the early days the people of California insisted on excluding sheep from the forest reserves, and irrigators generally urged the establishment of the reserves to protect the sources of water.

What the Live-stock Program Means

The resolutions of the stockmen as submitted to the Senate Public Lands Committee demand legal rights, which would amount to easements, for the use of the forage on the National Forests and public domain. These would be rights to the use of specific areas of land, not the right to graze a certain number of stock. The rights would be perpetual, transferable, and negotiable. They are to be granted to those now occupying the lands with their herds and flocks. The public lands are to be encumbered by private rights. This means that wherever grazing is allowed now on the National Forests no newcomer such as a local rancher, can obtain any grazing privileges except by buying a right to do so from the holder of an existing right. It means that the Government cannot devote a given area to some other use as, for example, the establishment of a recrea-

(Continued on Page 63)

The Beauty That Belongs to Swamps

By

GEORGE HEBDEN CORSAN



WHY the frantic desire, the mad rush to drain our swamps? Is there any place on the whole farm as attractive and alluring as the marshland? Along the edge of the swamp grow the beautiful marsh mallows, flaunting their blossoms of deep scarlet or rose pink in the vagrant breeze, and enmeshing the rosy dawn within its snowy chalice. If your swamp does not possess these gorgeous flowers, it loses much of its charm, but it is an easy matter to procure and plant them in the low damp places.

A little farther back from the marshy edges are the



tall straight stems of the cardinal flower, each a long spike of glowing color; with its cousin, the blue lobelia which has robbed the sky of some of its azure; in between, the pink shell flower grows more quietly. Earlier in the season, the swamp marigold throws out its conspicuous bright yellow flowers. Follow the deep purple of the iron weed and the lavender of the taller Joe Pyeweed. Water lilies nestle on the surface of the quiet pond in pink, or white or yellow purity above their flat green leaves, while the white flowers of the arrowhead



THE IDEAL SWAMP HAS A NARROW WINDING CHANNEL OF CLEAR WATER, BENDING AND CURVING PAST THE SLENDER SWAYING SEDGES, THE STURDY RUSHES AND THE RAINBOW BLOSSOMS OF THE MARSHLAND. WILD RICE, TOO, THE DELIGHT OF GAME BIRDS, GROWS ALONG STREAM BORDERS AS WELL AS IN SHALLOW LAKES

plants wait, sentinel-like, around the shallow shores. Beyond, the American lotus throws its larger glaucous leaves two feet above the water while its creamy cup-shaped flowers nod their heavy heads in the summer wind.

Other plants grow here and there—sweet flag, Japanese iris, blue pickerel, blue eye grass, giant reed, forgetme-not, purple vervain and others too numerous to mention. In the northern swamps, water arum takes the place of the calla lily which grows in the warmer marsh lands of the south.

Various sedges fringe the way. There is no more graceful plant in the entire grass family than the tall wild rice of the swamp. Then, too, what can be more attractive to the wild ducks than wild rice in seed, even though we supply them with wild duck millet, smartweed, widgeon

of silver bass and sunfish or bluegills, while darker shadows suggest the speckled and rock bass. Now and then a fish breaks the surface of the water with a splash of rainbow spray as it captures an insect. Wood duck, mandarins, bufflehead, goldeneyes, blue and green winged



A PAIR OF RARE MAGELLAN GEESSE

These birds, though upland geese, breed on the edge of a marsh in preference to fields or woods.



A HALF-HOUR'S CATCH

Bluegills, sunfish, black rock, speckled bass, rock bass, and catfish from the pond above the reeds. Where could one find a better breakfast?

grass, water milfoil, wild celery or eel grass, wampee or duck corn, wapato or duck potato, and sago pond tubers?

Minnows dart here and there between the submerged weeds. A glint of reddish gold indicates the passage of a gold fish; various flashes of silver reveal the presence

bergamot plants give forth a pleasant aromatic odor, doubly charming, because their bright scarlet and pinkish lavender flowers have gladdened our eyes during the hot summer weather.

Redwinged blackbird, the reed wren, king rail, galli-

teal, cinnamon teal, and the red-bellied fulvus tree ducks glide about amongst the water lilies and under the lotus leaves with their young, eating mosquito larvae and other things not wanted in the swamp.

But the beauty of the swamp appeals not alone to our eyes. As we break a new trail in search of a flower, we bruise the stalks and leaves of the mints—peppermint, spearmint and bergamot—and we inhale the richest of delightful odors. During the autumn months, and even well into winter, the dead flowers of the bee balm and

nule, scarlet tanager and other birds charm our ears with their melodies; bob white calls from the surrounding meadows and woods; ducks and teal add their chatter to the chorus of the swamp. Then, where, on this whole earth, will you find more music than in the boom, boom of the bull frog? If man had vocal chords like his, he could command any price he cared to ask!



AN ADOPTED FAMILY

This call duck is the proud foster-mother of a scrappy young brood of Golden-eyes.

But the beauty of the swamp extends beyond our eyes, our nose, our ears. It bestows upon us the pleasures of the tongue as well—frogs' legs; the surplus mallard drakes; water cress; the mints; the roots of the groundnut, either raw or cooked; whose rich, pea-like flowers with their blending colors and sweet scent have given joy during the summer.

Trees, too, grow in swamps, or in marshy land—trees that produce valuable wood, such as cypress, arbor vitae, tamarac, larch, pecans. Among the shrubs that delight in boggy ground are the elderberry, spicebush, the sweet scented white flowering pepperbush, the blue and white osier dogwoods, high bush cranberry, high bush huckleberry and serviceberry, all of which, except the pepperbush, provide food sought by the birds. Round about the swamp we find the hackberry or sugarberry tree, the seeds of which also delight the birds.

Of course a swamp will draw water snakes, snapping turtles, muskrats, mink and similar animals and vermin. But boys will find great sport in exterminating the first two, while the muskrats and mink will mean a source of income by constructive breeding and trapping.

You will suggest mosquitos, too, but why have mosquitos when it is more or less easy to be rid of them

by stocking your swamp with fish, ducks and teal and swans that eat more or less insect life? They will clear the swamp or marshland of pestiferous insects, just as pea-fowl, guineafowl, pheasants, quail and grouse will keep the uplands clear of grasshoppers, crickets, beetles which are so injurious to our woods and fields.

Yes, why drain the swamp? The swamp flowers can be sold on the market. I saw a woman in a market selling Dutchman's breeches for for-



NILE AND NATIVE LOTUS ON A MARSH

Loving the marsh, they thrust their blossoming heads skyward, creamy and beautiful against the dark green of their heavy leaves.

ty cents a pot. Any swamp will grow Turk's Cap lilies and other beautiful "wild" flowers, as well as various domestic or commercial flowers that prefer to grow in such places. Why, therefore, should farmers destroy or do away with this most interesting part of their land? The astute owner can usually make it profitable without sacrificing its character as a swamp.

Harbored Foes of the Forest

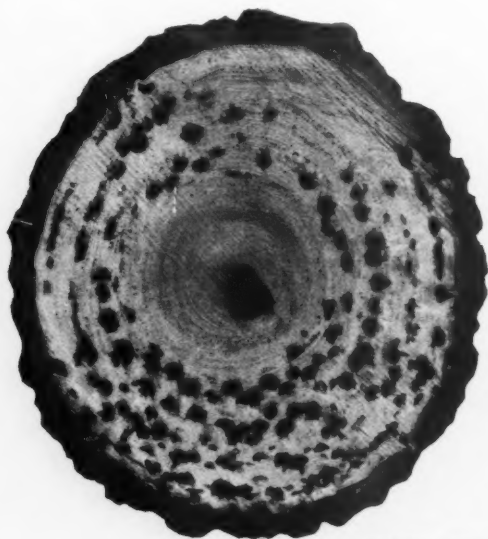
By R. D. FORBES

THE creeping, walking, and flying things which even the most commonplace forest harbors are countless. As long as the forest endures they will be here, working out, each one, his individual destiny, and together the destiny of their kind. The forest does not by any means dominate all the creatures within its borders. Many of the humblest sway the destinies of the trees, and often the forest in which they dwell.

It is, indeed, a curious fact that in general the tiniest creatures are the worst enemies of large trees.

One of these points is the tip of the branches, where the most active growth is going on, and where the bark over the living tissue is very thin. The second weak spot—and it is there that the bark beetle attacks—is the inner bark. This is a thin sheath of rather pulpy material which in every tree covers the wood of root and trunk and branch, and is itself covered by the outer or true bark. This sheath is partly living tissue, and partly “dead” tissue used by the tree to carry food from the leaves to other parts in need of nourishment. When a log is peeled it is this tissue of inner bark which gives away and allows the outer bark to come free of the wood within.

The grub of the bark-beetle lives in the inner bark. The parent insects are even tinier than the grubs. They are chubby little black beetles that alight in swarms upon a living tree of pine or other needle-bear-



U. S. Biological Survey

A HEAVILY WRITTEN RECORD

This is the cross-section of a mockernut tree, scarred year after year by a sapsucker, who rendered the wood worthless without doing any good in return.

Except for a sizable “critter” that walks on two legs, pays an income tax, and calls himself Man, the six-legged enemies of trees are the most destructive. Insects are sometimes the cause of widespread death in the forest and of staggering losses to timber owners. The worms or grubs for which our friend the woodpecker searches comprise a large family.

The most destructive American insects are the bark beetles. There are dozens of kinds. Although their size and the small details of their structure vary with the trees which each kind attacks, in the immature stage they are all tiny white grubs, not one-hundredth as bulky as an ordinary leaf-eating caterpillar. Now it is plain that so insignificant a creature could have no effect on a full-grown tree if it did not attack it in a very vital spot. The trees of the forest fall victim to very puny enemies when assailed at either of two points.



U. S. Biological Survey

A GRUB'S EPITAPH

*A birdie with a chisel bill
Hopped upon my window sill,
Cocked his shining eye, and said:
“Come on out, you’re good as dead!”*

And he was. He was tunneling down through the center of this young hickory, which has been split open to show what happened, when a woodpecker drilled through the wood and ended his career.



A. A. Allen

ON THE SCENT OF A MEAL

The brown creeper is not just exercising or sharpening his bill—he is one of many friendly forest creatures, and is searching for insects injurious to the trees.

ing species. The female beetle bores a neat round hole, about as large as would be made by fine bird shot, from the surface of the outer bark straight to the inner bark. As soon as she reaches that her troubles begin. Stimulated by the wound which the beetle makes when she stops boring inward and turns to explore the pulpy inner bark, the tree pours resin into the wound cavity. If there are but few beetles, the flow of antiseptic, sticky resin is vigorous enough to overwhelm and drown out the pygmies which threaten the giant's life. But if thousands of the beetles have attacked the tree all at once, the flow of resin is perhaps not enough to overwhelm them all. For as fast as the resin enters the beetle's burrow she sets to work to get rid of it. Working it and the sawdust from her boring into a more or less compact mass with her hind legs, she backs out along the burrow, pushing the mass ahead of her, and finally pushes it out of the burrow altogether. Being sticky, the resin clings to the bark outside, and as more and more of it is brought out by hard-working Mrs. Beetle, it forms a little lump on the bark of the tree. This lump is pierced by the constantly lengthening burrow of the insect, and is called a "pitch tube." The pitch tubes are often as big as the end of one's little finger, and represent an enormous amount of labor on the part of the beetles. They are the first sign to the forester or entomologist that the insects have attacked a tree.

Overcoming the resin that threatens to drown out her future family, the mother beetle eats out a vertical burrow two or three inches long in the inner bark of the tree. At quite even intervals along it she lays her

eggs. In a week's time these eggs hatch out into the grubs which, unless dug out by a woodpecker, proceed to burrow about in the inner bark. They make long irregular galleries at right angles to that in which they were hatched, and the pattern of their hungry wanderings is illustrated in the photograph. Finally, after a few weeks' work, the grubs change into the mature form of winged beetles, bore their way to the surface of the outer bark, and escape into the great round world.

Now meanwhile, what has happened to the tree? Just this: owing to the large number of grubs which have



Canadian Department of Agriculture

THE HANDWRITING OF DEATH

This engraving was done by bark beetles, which cost the American timber owner millions of dollars annually.



Bureau of Animal Industry

RAZORBACK ROOTERS

"A bucket of lard and a gallon of turpentine" is about all the owner gets when he slaughters one of these long-nosed destroyers of longleaf pine saplings.

been at work, the burrows have completely encircled the tree at many points, and girdled it just as effectively as if you or I had taken an ax and chopped out a ring all around the trunk! We all know that a tree girdled with an ax, or "deadened," as some people call it, cannot live very long if the job was thoroughly done. In the case of a tree with a narrow sapwood the ax has bitten through all of the outer tissues, and has cut off both the upward and the downward flow of liquids. These I have earlier described as vital to the tree's life, the upward flow being necessary for food manufacture in the leaves, and the downward flow for its transfer to the trunk and roots. In the case of trees with wide sapwood ordinary shallow girdling is not so promptly fatal. In general, it is only the thin inner bark which carries the downward flow of liquids, while the entire sapwood is available for the upward flow. (The inner core of heartwood allows no circulation.) Even the most shallow wounding with the ax cuts off the downward movement, but unless the girdling is very deep there is plenty of uncut wood which may yet carry the upward movement. When the grubs of the bark beetle eat their way in the inner bark right and left around

the trunk, their burrows have the same effect as a shallow girdling. Cut off from nourishment, the trunk and roots below them gradually starve, and the tree dies. Because the shallow burrows have not cut off the upward circulation from root to leaves, and the tree can get along for a while without food in its lower parts, the tree may live for a few weeks after being completely girdled by the grubs. In the end, however, if the beetles have attacked it in large enough numbers to encircle its trunk completely at several points, it is bound to die.

Among the animals proper few (other than man) greatly affect large trees.

Browsing and grazing animals, however, often deeply influence the future of the forest by feeding and trampling on young growth. The buds and tender shoots of probably a wide variety of trees is the natural food of deer. Just why the most valuable species of tree in the woods,

from the standpoint of mankind, should be beset, as it would seem most of them are, with the most numerous enemies, has long taxed my professional lore. Yellow poplar, for example, is by all odds the most valuable broad-leaved tree of the Southern Appalachian Mountains. Every grazing and browsing animal in the country seems willing to leave any other morsel to gobble up a shoot of poplar. Deer on the famous Biltmore es-



HE'D LIKE TO GET IN, BUT HE CAN'T

These tree seeds were sown experimentally on an old burn in Montana and were protected from rodents by wire screens. Apparently the protection was needed!

tate have been pointed out to me in the spring of the year as following close behind the timber-felling crews on a logging job, and eating off the buds of all the felled poplars. As long as they confined themselves to down trees, no forester would begrudge them their fill of poplar buds, but when a thicket of valuable poplar seedlings becomes their grazing ground we find it had to forgive them.

No less eager after poplar shoots are the range cattle of the mountains. Though it is difficult to deny the mountain folk the privilege of making what money they can out of beef cattle on the National Forests of the Appalachians, the foresters in charge of cut-over areas have to insist that only milk cows be turned out

seen a band of several hundred sheep moving billow-like over hill and mesa, the leaders snatching a mouthful of herbage here and there and then moving eagerly forward, can understand how bare the range may be stripped of all green things by these woolly hordes. After years of careful study the foresters of the Southwest have reluctantly concluded that on certain areas it is hopeless to attempt to bring back a new forest of western yellow pine on sheep range. Unless the young trees are over three feet in height they will be so bitten back by sheep as never to make proper growth, or they may be killed outright.

Certain furry dwellers in the forest no doubt accomplish at least a little good there by planting the seeds



United States Forest Service



Ohio State Forestry Department

TO GRAZE OR NOT TO GRAZE?

A hardwood tract in Michigan, grazed by cattle. The absence of young growth is due to close cropping of browsing and grazing animals allowed free rein.

No grazing in this Ohio woodlot! Contrast the luxuriant growth of young hardwoods here with their absence from the Michigan scene at the left.

to graze. Otherwise the young poplar would be doomed. The champion of all creatures when it comes to ruining young poplar is the humble work-ox. A twelve-hundred-pound ox can somehow manage to get astraddle of a poplar sapling two or three inches in diameter, and "ride" it to the ground. After that he polishes off all the green leaves and small shoots at his convenience. Moreover, I have seen poplars four or five inches through, tall and vigorous as ever trees were, stripped of bark by oxen to heights of ten or twelve feet.

On many an over-grazed range sheep have wrought an enormous destruction of seedlings of certain Western trees—yellow pine, for example. Anyone who has

of many kinds of trees. After watching a squirrel bury an acorn or chestnut in the ground, did you ever go to the spot and try to find it? If your experience is like my own, you never succeeded. No doubt a good active squirrel buries a great many more nuts every season than he himself finds later. Maybe he just forgets where he put them. Or maybe he never tries to remember, but trusts to his nose to reclaim his buried treasure for him. In either case an occasional nut is sure to escape him, and his descendants are destined to frisk through the branches of many a towering oak and hickory that sprang as a result of his forgetfulness. Besides the squirrels a host of other rodents, such as the

(Continued on Page 44)



WILL HE TURN ON THE WATER, OR JUST GO ON FIDDLELING?

A Cause for Action

TWO years ago, Congress passed a bill, now nationally known as the Clarke-McNary Act. Its passage was heralded as the greatest step yet taken by the Federal Government in shaping a National Forest policy. More than that, it was an expression on the part of Congress, and therefore an expression on the part of the people of the United States, that the time had arrived to attack our forest problem in a larger and more definite way. The Act authorizes the Government to do certain needed things to protect our present forests and to provide for the nation's future timber supply, notably better forest fire protection and a larger program of public forests in the eastern states.

The Act itself appropriated no money with which to carry out the forest policy enunciated. It merely authorized Congress to appropriate not to exceed certain amounts for the different lines of work specified. Before the Act could become effective, therefore, it was necessary for Congress to make specific appropriations. The appropriations which the Bureau of the Budget approved last year under the Act were in every instance far below what the Act contemplated. The result is that the Clarke-McNary Act, crippled by inadequate appropriations, is not accomplishing what the people demanded and what they have a right to expect.

The situation is well portrayed by the cartoon pub-

lished at the top of this page, drawn especially for AMERICAN FORESTS AND FOREST LIFE by Mr. T. E. Powers, the distinguished cartoonist of the *New York Evening Journal*, and contributed to the Association's educational campaign against forest fires. Unless Congress applies the wrench to the machinery it has set up and turns on the waters of relief, our forests will continue to burn and disappear.

The recommendations of the Bureau of the Budget, submitted to Congress a few days ago, do not provide increases under the Clarke-McNary Act for the next year. It remains, therefore, to carry the cause to Congress. This task the Association has already undertaken and in carrying it through it asks the help of all individuals, organizations and industries who believe that it is false economy to attempt to save a few thousand dollars today at the expense of future forests.

Congress will be asked to appropriate \$1,500,000 for cooperative forest fire protection, for which the Bureau of the Budget has recommended only \$660,000 and to increase the item for the federal acquisition of forest lands in the eastern states from \$1,000,000, the sum recommended by the Bureau of the Budget, to \$3,000,000. The Association will be glad to inform all those who are interested and it urges them to express their views to their representatives in Congress.



With the Akawais of British Guiana

By PAUL GRISWOLD HOWES

(Photographs by the Author)

TWO miles from the Kalacoon Laboratory on the Mazaruni river, in the deep, ever twilight of the big jungle, grew a huge buttressed tree of stupendous proportions. It stood near a clear sandy brooklet that wound its way through the forest and here crossed an Indian trail. From its great, folded, pocket-forming roots, filled with a cushion of fallen leaves one could watch the forest on every side, safely elevated ten feet above the jungle floor. From this natural cache entirely unobserved, I first saw the Akawais

This narrative, written in the jungle forests of South America, with "Nupe," an Indian hunter, the central character, is a fascinating portrayal of the traits and customs of the Akawais Indians. The author, Mr. Howes, was a member of the first three expeditions under William Beebe, which established and put into operation a few years ago, the Kartabo Research Station of the New York Zoological Society, some fifty miles inland on the Mazaruni River in British Guiana. The purpose of the station is the advancement of scientific research conducted within the very jungle itself.

—Editor.

at home. They appeared suddenly out of the confusing leafage, as silently as serpents, not a sound escaping at their progress save the brush of leaves against their naked skins. Underfoot there was absolute silence. each footfall mysteriously muffled. Not a twig cracked, not a leaf rustled. To the white man who has striven for this silent progress in the jungle, it was an uncanny reality.

In this little band there were six individuals. They were quite naked save for narrow, brilliant scarlet bands about their waists. The



OUR INDIAN HUNTER RETURNS

Loaded with delicious game for the table—this is the Indian who learned to use the shotgun in place of his bow and arrows.

leader carried a coil of rope; three following him possessed great black bows and five-foot metal pointed arrows; the fifth clutched a three-pronged fish spear and the sixth came empty handed. Following the men trotted a lean, wild-looking dog, moving as silently as the Indians themselves.

Their beautiful copper-red skins, splashed by the red of their waist bands, and the warlike appearance of the party against the deep emerald background of the jungle, made a picture never to be forgotten, and one that has always remained vividly in my memory.

The men appeared to be on a hunting expedition, although traveling in some haste. As they neared the buttresses of the great tree in which I was hiding, the leader caught sight of me and stopped for an instant dumbfounded. Following the direction of the leader's gaze the rest soon saw in me the cause of his surprise. They looked me over carefully, wearing an expression which was a mixture of curiosity and bewilderment, but in these six stoic faces there was not a trace of either fear or hostility. My Winchester carbine, however, came in for special observation, the meaning of which would have been hard to interpret. Although I greeted them and looked as friendly as possible, the little band tarried but a moment before continuing their way silently through the trees. As they progressed, I could see them turning their heads for a few last glances at me before the forest finally closed about them.

The news evidently spread. A few days after this an Indian came to our laboratory. He carried the usual long, exquisitely-made bow, and two arrows of great

length tipped with steel points that were sharply filed, and with which I induced him to part some time later for a few coins. At the sight of all our collecting paraphernalia, this Indian was plainly fascinated, particularly with our many guns, that glistened in a rack upon the wall.

At first he was very bashful, afraid of his own voice, and it was with difficulty that our negro interpreter succeeded in obtaining answers to our many questions. Realizing the futility and tediousness of such a method, we procured a glass and bottle and served our Indian visitor with a staggering drink of whiskey. So powerful was it that tears appeared in the black shining eyes as the liquor disappeared stomachward, but it produced the desired effect of bringing the Indian out of his shell. It was quickly arranged that we should pay him at the rate of five whole dollars per month, in return for which he was to hunt for us whenever the larder became too low. Through this arrangement it was unnecessary for us to hunt except when the spirit moved us and we were thus assured of an abundance of game for the table.

Just as this strange fellow preferred a perfectly civilized straw hat to an uncovered head, he wished to be called Jeremiah, although Nupe was his real, and far



NEST AND EGGS OF THE GREAT TINAMOU

This splendid jungle game bird has fine, white flesh and the eggs contain as much substance as a hen's. The shells are brilliant blue.

more picturesque name. At Kalacoon he soon became a valuable fixture, taking great interest in our work and his own, hunting quite faithfully and giving much reliable and valuable information, which is very rare in an Indian.

As time went on, Nupe picked up many words of our own language, until after some months he possessed a small English vocabulary. In mind he was but a child, and would spend hours looking at bird and animal pictures in our natural history publications in rapt interest, especially over such exotic creatures as giraffes and elephants. For such magazines as the Saturday Evening Post or the Home Journal, Nupe showed open disgust.

We had with us on this expedition, guns of all descriptions. Among them was a little shotgun of small gauge for which Nupe possessed undisguised admiration.

So evident was his longing to possess this weapon that at length it was decided to teach him to use it. He learned rapidly and easily and took pride in hunting with this weapon, bringing in a great quantity of fine animals and birds for the table. An Indian born and bred in the great forests, depending entirely upon his bow and arrows or the blow-pipe, learns in infancy the art of stealth and soundless motion. They are able to approach even such acutely sensed animals as deer, within arrow distance, without the animal being aware of its danger. Needless to say, this natural ability combined with a modern fire-arm brought remarkable results. Sometimes he would not return from the forest until nearly dark and on these occasions would be literally hidden beneath a load of game consisting of Trumpeters, powis, guans, agoutis or monkeys.

Trumpeters are strange, long-legged birds of the forest and extremely fine eating, the meat being dark and finely flavored. The birds are often captured when young and kept as pets about the benabs of the Indians. They become very tame, frequently give vent to their strange deep pumping sound, and make really very in-

teresting pets. Powis are jungle partridges, very fat, with white flesh and as good to eat as any domestic bird of the north. We also ate their eggs which were found in nests among the forest leaves. They are huge, greenish-blue spheres, and as six are sometimes found in a single nest, a fine feast was not unusual. These were the eggs of the great tinamou; powi being the Indian name of this bird. Smaller species occur also, but their eggs are laid singly and are smaller and differently colored, one being purple and another light chocolate brown.

Guans are birds of the tree tops as large as turkeys and truly the king of the jungle birds, with excellent flesh and great quantities of it. In Guiana we were unfortunate in obtaining but a few of these birds, although they are quite abundant.

The agouti is a small rodent, resembling a large and long-legged Guinea pig as much as anything else. It is a swift running animal of

the forest and as common as rabbits in the north. This little creature formed a chief article of our diet and was served almost daily, in a variety of ways.

Monkeys are not exactly pleasing to the taste, being rather tough and possessing a strange flavor, unlike any other meat.

We ate quite a few however, when other food was scarce. Nupe our hunter, brought in, with great pride, an occasional small deer.

These we would butcher, making regular chops, steaks, legs and shoulders. The species on which we made many a meal is very small and tasted nothing like the venison of the Northern woods, but resembled veal more than anything else.

Another animal that we greatly relished was Peccary. This tropical representative of the wild boar of Europe is much like pork of the domestic variety. Although Peccaries travel through the jungle in bands of all sizes and leave their tell-tail ploughings everywhere beneath the great trees, we actually saw very few, and these often when unarmed. I have heard many stories of the viciousness of the boars but have never seen any show of violence displayed by them even though I



A DELIGHTFULLY DOMESTIC SCENE

Pater familias—the copper-skinned owner and builder of this Akawai hut, stands contentedly in his doorway. This is typical of the open-sided native hut.

walked within a few feet of a pair of them before they discovered my presence. They made off in great haste.

We were anxious to obtain peccary meat for food, and having had little success ourselves with rifles, we scarcely expected our Indian to do any better with a small gauge shot gun. Nupe thought otherwise however, and declared that he would return with the desired trophy. We smiled as he disappeared into the forest, went about our work and completely forgot about him. That evening he returned very tired from his efforts, but he had actually shot a fine peccary and had carried it all the way to Kalacoon, slung upon his back in a very ingenious harness of bush ropes. Close questioning brought out the facts. He had emptied the small shot from several cartridges and filled the spaces with the heads and fragments of large nails taken from our tool chest and ingeniously cut into murderous slugs by the aid of a vise and file. Indians are strongly inclined to exaggerate their experiences. Likewise they often pretend to know everything that is asked of them by a white man rather than appear ignorant in his presence. Nupe was an exception, truthful and trustworthy in his statements and possessed of a remarkable knowledge of the jungle creatures and a well developed power of accurate observation. The animals, birds and jungle creatures in general have been named by the Indians in a descriptive manner. Thus when asked the name of a certain bird, Nupe would answer with a name that would suggest its song, or call or some habit of its life. The "Hanna-qua" for instance, a small species of guan, called the very syllables of its splendid Indian name, persistently every morning at sunrise from the thickets about Kalacoon.

The camps of the Akawais consist of thatched shelters. They are simply frameworks of poles lashed together with bush ropes and the roofs covered with leaves of palm and other trees. They sleep elevated from the ground in hammocks and their entire household equipment is of the scantiest and simplest nature.

The men hunt, drink their beverages, and wander about the forests. In accordance with the usual custom among Indians in general, the women plant the

cassava gardens, and tend to all the harder work of the camps and households. Cassava is the staple vegetable, a coarse root that must be carefully cooked before being eaten, in order to rid it of the highly poisonous hydrocyanic acid that it contains. It is very good indeed boiled, made into flat objects like potato cakes and fried, but continued use of this legume stimulates the girth of the white man. This, at least, is how it unfortunately affected the author.

The Akawais are very superstitious, and legend runs riot about most things of the forest. All about the gardens of the squaws are planted Beenas, a family of plants belonging to the caladiums. The leaves of these plants are very beautifully patterned, being striped, mottled and splashed with various designs and colors, suggestive of many forms. Each species possesses some peculiar charm in the power of which the Indians have implicit faith. The men use different beenas from those of the squaws and these are usually found growing wild in the forest. If a man desires to be in favor of a squaw, he searches the jungle until the proper love beena is found. From this he plucks a leaf and hurries to the object of his love and drops the charm in her lap or perhaps touches her with it. The charm generally works at once, chiefly because of the squaw's belief in its power. As a matter of course she accepts the man's suit—even though the man be old and physi-

cally unattractive and the girl be young and beautiful.

Other beenas give success in hunting or bring good fortune in war. There is probably no species of animal or bird in the forest that is of value to the Indians that has not a particular beena that the hunter may use in the process of charming it. In some cases the leaves are eaten, but more often they are rubbed upon the skin or into cuts and self-inflicted scratches, which appear to heal very rapidly, due in all probability to the peculiar properties of the juice of the plants.

In their hunting expeditions the Indians are very skillful with the bow and arrow. Unlike the short arrows of the North American Indian, the Akawais' are hollow reeds, four or five feet in length tipped with steel or bone points. As a general rule, feathers are absent from the shafts. Game and fish are both ob-



THE JUNGLE

Note the magnificent forest growth along this typical creek of British Guiana, where Indians live today almost in their primitive state.

tained with these arrows, which are shot with great force from the stout bows, strung with fibre cords made from certain forest vines.

In addition to the bow and arrow, fish spears are used, made on the type of a three or four-tine pitchfork, with barbed points at the ends of the tines.

Another weapon of great interest and in frequent use is the blow-pipe. It is made from a large hollow reed, six or seven feet in length. A peccary tusk is set in one end by means of gum, for a sight. The hunter carries a quiver fashioned of deer hide, containing forty or fifty darts of very hard palm fibre. They are ten inches in length, but no larger in diameter than a match and each one is sharpened to a perfect point. A shallow groove is cut encircling each dart, an inch or more from its sharpened end. The entire point is then coated with deadly poison, which is probably made from snake venom, strychnine and other vegetable poisons known only to the Indians.

In addition to the quiver and darts, the hunter carries a bag of fluffy material from the seed of the silk cotton tree. A bit of this is wound about the blunt end of the dart and the entire object is inserted into the end of the blow pipe.

With this weapon a man can blow a shaft with terrific force and great accuracy. When the poisoned point enters its victim, the groove serves to weaken the protruding dart, which breaks off at the first jump of the wounded victim. Strange as it may seem, this poison kills the creature that it strikes, but does not affect the meat, which may be eaten with impunity.

After some practice with these blow guns we became quite good shots at short range and I once saw my friend Innes Hartley bring down a small bird with a dart as neatly as he might have done with a rifle!

The Indians are naturally stoic and fearless yet Nupe possessed one weakness. He was in mortal terror of snakes. Returning one day from the jungle, he excitedly announced that a huge bushmaster was sleeping coiled near the trail. The bushmaster is probably the most poisonous of all the South American snakes. They grow eight or nine feet long, possess a hard body of large diameter and long, curved needle-like fangs that inject a deadly poison.

The habit of this reptile is to lie coiled and

motionless on frequented animal trails. Their color pattern blends perfectly with the leaves of the forest floor and it is therefore an easy matter for them to obtain plenty of food with little or no effort.

Nupe's announcement sent several members of the expedition to the scene, the leader carrying a long pole and an especially contrived looped rope to capture the prize. After considerable difficulty and exciting efforts, the huge snake, taken off its guard, was induced to glide directly through the noose hanging from a stout screw-eye in the end of the pole. Instantly the rope was pulled tight about the creature's neck and the job was done. This sounds very simple indeed, but those who have taken part in the capture of a powerful and tremendously dangerous snake of this type know otherwise.

During the entire proceedings, Nupe and his wife stood at a very respectable distance. They were in fact as far away as they could get and still see what was taking place. During the capture they jumped about and shouted in childish glee. When the rope was fast about the squirming serpent, Sam the black man jumped upon his thrashing body and other hands gripped the

great coils, at length subduing the creature by brute force. At this point, seeing that all danger was past, Nupe strode boldly up, grasped the snake fearlessly in the center and thus walked proudly with the rest, back to the laboratory, as though he had taken a major part in the capture of the prize.

From Nupe and others we learned much of these strange Indians. After a time he greatly preferred our company to the society of his own people. He became very fond of clothes and a bright new straw hat was his special prize. Associating with us day after day raised him to the plane

of a wise man among the Indians. It is easy to imagine how, after we departed, Nupe returned to his people and elaborated and magnified his knowledge and experiences. He knew the mysteries of the microscope and typewriter, of books and cameras and repeating rifles. He had seen pictures developed in the weird red light of the darkroom lantern and had beheld his face appearing suddenly upon blank sheets of paper. In fact he had delved into all the products of a far-away civilization, not excluding the Bronx and Manhattan cocktails.



A YOUNG TOUCAN

Seldom do white men see this strange bird at so early an age, though the Indians tame them and keep them as pets. The enormous beak of this fellow is already evident as one of his chief characteristics.

Trees and Taxes

How Can Both Be Produced by the Same Land Without Interference?

By THEODORE M. KNAPPEN

TREES and taxes, two of our vital needs, have developed a relationship which is worrying foresters, lumbermen, timber owners, legislators, taxpayers and tax collectors in most of the forest states. It is a shifting puzzle, taking the dilemma form of the more timber the less tax revenue and the more revenue the less timber. If a forest land political subdivision would have forests it must go without public improvements and services; and if it would have the latter it must sacrifice the former. If a forest owner would practice forestry, taxes penalize him; if he would exploit, taxes encourage him. It is a problem that bristles with difficulties and is charged with the weal or woe of managed reforestation.

Except as modified by new tax legislation in a num-

ber of states during recent years all forest land has been subject to a general land tax. Superficially this seems to be a fair and inevitable levy so long as we have direct property taxation. In practice, however, it is not an impartial tax, because the value of the timber is included with the value of the land in the annual assessments. Such a tax may do rough justice to virgin timber which was not raised but grew without aid or effort, but it clearly discriminates against land in process of reforestation. It discourages silviculture as compared with agriculture, because while the products of the latter are never included in the annual assessments the annual growth of trees is included. The result is that the tree-crop is taxed over and over again during the long years it is ripening, whereas the field crop is

never taxed. It sometimes happens that the taxation of growing trees is heavy enough to offset the value of the growth, so that at the end of the forest crop cycle the owner finds that he has been growing trees wholly for the benefit of the public treasury and with no personal gain.

Moreover, we have now arrived at a time when the land tax, even as applied to virgin forests, works against public interest, though it may not be considered an injustice to the owner. So long as we had too much forest rather than too little and the major part of the taxable wealth of many communities was in forest land it would have been impracticable and unjust to other forms of property not to tax standing timber. The



WILL THIS CROP BE ALLOWED TO MATURE?

Young Norway and jack pine in Minnesota upon which heavy taxes must be paid each year in spite of the fact that a harvest is only possible once in many years.

taxes were not actually heavy and were easily absorbed in the annual commercial depletion of the forest, a depletion that at once profited the owner and benefited the community. In recent years, however, every forest region in the country, in common with non-forest regions, has undergone great increases in assessed valuation, accompanied by enormous increases in the tax rate. The result has been such a heavy burden on standing timber that prudent owners have had no recourse except in rapid conversion of timber into usable and salable products. This means that much timber has been cut and is now being cut in ex-

cess of normal demand, with a depressing effect on the market. Sequential low prices have compelled much physical waste in the woods and at the mills, as there was either no market or no profit in the poorer species or qualities of wood.

Replying to a questionnaire some years ago 155 Washington state timber owners asserted that rapidly increasing taxes had been the incentive to unduly rapid cutting. Mr. E. R. Hines, owner of extensive forests and large mills in Mississippi, Wisconsin and Minnesota, recently stated that his corporations were paying almost a million dollars annually of taxes in the three states. To hold the timber back for ten years would cost \$10,000,000 not including interest. One timber owner in California is paying \$1,000 a day in local taxes. He must keep his mills running, good times or bad, just to pay his taxes, and the more rapidly they run and the more rapid the depletion of the forest the better off he is. A southern timber concern drafted a plan of annual cutting by subdivision and selection, so that it would take twenty years to cut over the tract. The tax assessor slapped on such an assessment that the company felt compelled to abandon selective cutting, build two logging railways and two mills and clean-cut the whole tract in ten years.

Taxes are the sufficient answer to much of the angry denunciation of lumbermen as slaughterers of the forests. For instance, it is a fact that cut-over land in North Carolina on which the new growth has a good start is often taxed at two per cent annually on the valuation. Allowing six per cent interest on the in-



MUST THIS BE CUT REGARDLESS OF LUMBER DEMAND?

Partially mature Norway pine stand which may become a liability to the owner unless cut clean to escape taxation burdens. Some of the trees should be left to insure the next crop.

vestment, a two per cent annual tax on a full valuation means that in less than thirteen years interest and taxes will eat up the valuation.

It appears, therefore, that the present system of land taxation operates inimically to the conservation of our standing forests as well as the growth of new ones. It is true that there has been so far but little favorable response by the owners of cut-over lands to the improved systems of taxation that have been already introduced in some states. This has led some students of forest taxation to hold that actually taxation is not a major deterrent to reforestation, the determining deterrent being a lack of economic motive. However, they concede that just taxation will be the decisive factor with many owners when their interest in reforestation is sufficiently aroused to lead to a careful examination of its economic justification. In any event, it is admitted that land taxation as applied to growing forests is unjust in principle and should be revised.

It is now generally agreed by taxation authorities and timber owners that forest land should be treated as two kinds of property:

First—The bare land.

Second—The trees.

Both, it is agreed, should be taxed impartially with other forms of property. The bare land should pay annual taxes, and its assessment should be strictly without reference to the value of the trees. While it is conceded that the timber owner will not have an annual income from which to pay even annual bare land taxes,

there seems to be no escape from the collection of such taxes so long as all other lands, used or unused, have to bear a tax. The hardship of paying an annual tax on land that can not in its nature produce an annual income is one of indifference to the community. It simply means that forest owners must have other sources of income or else dispose of their land to stronger owners. The land and the trees will remain, and the latter will grow no matter who holds the tax receipt. The bulk of the commercial timber of America is today in strong financial hands or is associated with lumber manufacturing, and it is likely that most reforestation will be conducted in connection with a going manufacturing business; so that on the whole the bare land tax will not work much individual hardship.

As for the trees, taxation theory has pretty well crystallized to the principle of yield or maturity taxation. That is, when the trees are cut or have reached a suitable age for cutting, they shall be subject to a stumpage tax, heavy enough to be considered as deferred from each growing year.

It will be observed that no special consideration in the proportion of taxation to be borne by forest lands is involved. The variation from the present system is simply one of collecting the tree-crop tax but once, and then when the trees are ready for realization.

When it comes in any state to applying this ideal system of timberland taxation a constitutional obstacle is usually encountered. State constitutions, as originally written, usually made an *ad valorem* annual property tax mandatory. In passing it should be remarked that if assessors had not tempered constitutions to suit practicality billions of timber now standing would have been long ago leveled. An illustrative case of exceptional assessorial "dimwit" comes to mind. A Mississippi lumber company removed the valuable pine timber from a large tract of land but left the then commercially worthless hardwood of a certain species. The pine was gone but the tract still had a decidedly forest aspect. The local assessor consequently assessed the cut-over tract as timber land. The company protested in vain that the land was currently worthless from a timber point of view. The taxes were so heavy that it had no option but to send a crew of men into the woods to fell the hardwood. The trees were left to rot. Today that timber would be quite valuable and the county would be deriving a goodly revenue from it. Instead many million feet of good timber were destructively wasted, the county got no more taxes at any time than it would have received had the land been assessed as cut-over land, and not for two generations will it derive any revenue from timber on that tract.

After constitutions are so amended as to permit a suitable system of taxing timberland there remains the knotty fiscal problem of how to meet the necessary public expense in forest communities where the land is mostly timbered or reforesting and the harvest re-

mote. Suppose, as is said to be the case in one Oregon county, more than 80 per cent of the county's assessed valuation is in standing timber: What is the county going to do to keep up roads, maintain police, administer justice, and support schools and public institutions? Certainly the whole load can not be shifted to the other 20 per cent, probably already overtaxed in this day of high public living. It is no answer to say that taxing the timber now only hastens the coming of the day when there will be no timber to tax—that it is only a question of no timber tax today or no tax timber tomorrow. We live in the present, today's bills must be paid today; so, the local authorities spend and tax and leave the future of the forest community to its own stumpy funeral.

To meet this dilemma it has been proposed to issue revenue debentures that will mature with the growing timber. Another proposal is that the owners of the timber shall each year advance that proportion of the estimated final yield tax indicated by the number of years that must elapse before maturity. Thus if it be considered that fifty years must elapse before a certain forest is ready for the ax and saw, then the owners would advance one-fiftieth of the estimated yield tax each year and would receive in return interest-bearing certificates which could be applied in satisfaction of the tax when the timber matures. Still another proposal is that since the forested regions are serving the whole state by conserving their timber through current taxation denial, it is the business of the whole state to compensate them by adequate allocations of funds from the state treasury so that the standard of public improvements and administration may be as high as would be justified by a sparse population. Similar situations will arise even if the State is to take over the job of reforestation and acquire cut-over lands. Some substitute must be found for local taxation as a source of support of public functions. Our National Forests are in this position, and their administration seeks to do local justice by paying the state authorities a certain proportion of the forest receipts, but in many National Forest covered counties there is now little or no revenue from this source; and the local view is that a national benefit is a local "malefit." In Pennsylvania the state contributes a per-acre amount to local treasuries.

Thus we see that forest taxation bristles with difficulties from every angle. The lumberman is right when he complains that heavy taxes hasten deforestation and delay reforestation. The local authorities are right when they say that as matters stand they must annually tax timber, even if after them the deluge. Tax experts are right when they say that it is unjust to tax timber annually as part of the land. Tax collectors are right when they say it is unjust to make minority property carry the majority public burden. Where all the disputants are singly right and collectively wrong, there must be a collective composition. And it is on the way.



THE TRAPPER STARTS OUT OVER THE MARSHES TO LAY HIS TRAPS

Where the Lowly Muskrat Has Won the Crown of Leadership for the Land of the Creole

By OLIVER P. NEWMAN

HISTORIC Louisiana, famed for the sleepy romances of her "old Creole days," has sent forth a clarion challenge to distant, snow-capped Canada. Once the supreme American fur market (for a brief, glorious period early in the last century) she again aspires to lift that crown from the brow of "Our Lady of the Snows." Her dependence in this seemingly impossible feat is the lowly muskrat, which has suddenly been transformed from a slinking, offensive creature into the pride of milady's wardrobe.

Until very recently Mr. Muskrat was camouflaged under the trade name of "Hudson Seal," "Ermin" or "Fox," but now, among furriers at least, he stands on his own. He is respected because his fur is better, more durable and silkier than that of other animals. It takes and holds dye better than anything else and therefore "genuine muskrat" is rapidly coming to mean more

in quality and dollars than most other varieties of skins.

Twelve million muskrat pelts were made into women's coats, wraps and collars last year. More than six million of them were from Louisiana. Only three million of them came from Canada.

As a consequence, hundreds of thousands of acres of Louisiana and Texas marsh lands along the Gulf of Mexico, formerly considered almost worthless, are leaping into high values. They have been turned into "rat ranches," which have suddenly become flourishing institutions, employing thousands of trappers and calling for hundreds of thousands of dollars in capital. One concern, the Orange-Cameron Land Company, with 200,000 acres along the Gulf, just east of the Sabine river, which divides Texas and Louisiana, shipped more than half a million pelts out of the little town of Orange, Texas, last winter for a price around three



quarters of a million dollars. This company employs 140 trappers and this year expects to use 300.

The Jones-Frere Company, in the same section, in the season of 1923-24, caught 220,000 rats on a twelve-acre tract of marsh land. The price to the trappers was then 35 cents a pelt, which, with the mink, coon, otter and other skins taken, made this little piece of swamp yield \$88,000. During the past season the pelts averaged 85 cents each and the yield was about the same, which means an income of about \$200,000 from the twelve acres.

It does not follow that the two and a half million acres of muskrat marsh in Louisiana will produce in the same proportion. The muskrats are thicker in some places than in others. For instance, it has been discovered that their favorite food is a three-cornered rush that doesn't grow everywhere. The animals, of course, are thickest where this rush is most plentiful. It is believed, however, that the rush could be produced in all marsh lands by transplanting.

The Louisiana muskrat is a separate species and information about its life habits is inadequate. The trapping now is limited to localities where it is plenti-

ful. The land owners and fur buyers, however, in co-operation with the trappers and the state department of conservation, are arranging to have biological studies made, in order that the industry may be carried on scientifically and with assurances of commercial success.

The war made muskrat fur what it is in the fur market today. The dye business moved to America at that time and now the dyed fur industry belongs to the United States instead of to Europe. Thus the obscure muskrat, formerly believed to have no useful purpose in life, has come into its own. Foreign fur dyers, imported to teach Americans the trick of fur dyeing, brought the muskrat to its present proud eminence. The same circumstances bring a new commercial fame to the land of the Creole and Cajun, whose swamps teem with muskrats, willing to walk into the traps. The fur trade is demanding more and more pelts. The supply of rats seems to be unlimited, even without special feeding and propagation. Louisiana, therefore, feels that it isn't such a far cry as it sounds to fur-producing supremacy over Canada.

Another phase of the industry receiving



THE UPPER PICTURE SHOWS THE TRAP, LAID FOR THE LITTLE ANIMAL IN WHAT IS KNOWN AS A MUSKRAT "RUN," AND IN THE LOWER PICTURE THE TRAP HAS DONE ITS WORK. THE OVAL INSET SHOWS A MODERN "HUDSON SEAL" WRAP—THE CONTRIBUTION OF THE LOWLY MUSKRAT TO THE LUXURY AND BEAUTY OF MILADY'S WARDROBE

serious attention is the use of muskrat meat as food. At present the carcass is thrown away after skinning. In other words, eighty-seven per cent of the product is wasted. In rare instances the carcass is sold and shipped North, where it is served as "marsh rabbit," a rare delicacy bringing 35 cents in the market. The meat is clean, sweet and wholesome, tasting much like squirrel. The muskrat is cleaner than most animals killed and eaten as food. It is exclusively vegetarian in its diet and cleanly in its habits. The flesh does not taste of musk if the pelt has been properly removed.

As there were six million skins taken in Louisiana last season it is reasonable to assume that at least as many will be taken this winter. Each animal weighs about three pounds after skinning, so the throwing away of the carcasses means a loss of about eighteen million pounds of choice meat a year. This consideration has led to a plan to erect

canneries near the "rat ranches" for canning muskrat meat—a new industry that will probably be in operation by next season. The 1924-25 catch of muskrats in the "Pelican

State," according to Stanley C. Arthur, director of the Division of Wild Life, brought the trappers between \$4,500,000 and \$5,000,000 for three months of winter work in the swamps. For every pelt taken the State exacts a severance tax of one-fourth of a cent. Recognizing the value of the industry the State Department of Conservation is taking steps to perpetuate and increase the muskrat. Paradoxical as it may seem, Louisiana has become the foremost fur producing state in the Union and the muskrat contributed six-sevenths of all the pelts of fur bearers taken in the state last year. Down New Orleans way they are talking about that city becoming the fur-trading market of America. All of which means that the lowly



A MUSKRAT HOUSE. THOUSANDS OF THE LITTLE FELLOWS LIVE LIKE THIS IN THE MARSHES, WHERE THE THREE CORNERED RUSH THAT IS THEIR FAVORITE FOOD IS PLENTIFUL

muskrat is no longer "lowly" in the land of the Creole.

The McNary-Woodruff Bill Reintroduced Early in Congress

The McNary-Woodruff Bill was among the early measures to make its appearance in the 69th Congress. Representative Roy O. Woodruff of Michigan introduced the bill in the House on December 7 and Senator Charles L. McNary of Oregon offered the companion measure in the Senate on December 8. The new bill is designated H. R. 271 and S. 718.

At the time of going to press a date for a hearing had not yet been set but it is planned to have a joint hearing by the subcommittees of the House Committee on Agriculture and the Senate Committee on Agriculture and Forestry. It is confidently expected that the bill will receive favorable consideration but the support of every citizen is necessary. The McNary-Woodruff Bill, which provides an adequate fiscal program for the purchase of National Forests, falls under the class of proposals which the President clearly endorsed in his recent message as "reproductive capital investments."



His Own Petard

By CHARLES V. BRERETON

LIGE Minton's Hodd scrambled the last precipitous rod to the Pinnacle, aiding his steps by grasping the drooping limbs of a stunted pine that grew on top. He unslung the heavy pack that galled his shoulders and glared into the canyon from which he had just emerged.

"Damn the brush!" Hodd exploded as he wiped his streaming face with an already overworked handkerchief, "Feller used to could walk all over these hills without gittin' th' clothes tore plumb offen him. An' now th' cussed forest rangers has got so many hifalutin' laws agin fire that th' country's gittin' all growed up agin. Damn th' law, anyhow! Who cares fer their cussed law?"

Hodd stared moodily into the canyon as though waiting for something. He was. By now a thin plume of smoke should be curling from the bottom of the V-shaped gorge, a mile away, where Hodd had cunningly fired a rotten log that would burn like punk until the resinous needles surrounding it exploded in flame and the forest lookout on distant Hammerhorn trained his telescope on the cloud of black smoke that boiled up from the creek.

There was a reason—in fact there were two, for Hodd's having set that fire. The same reason that now caused his grievance against all law. Henceforward, Hodd and officers of the law would be mortal enemies. One of these reasons, so far as Hodd knew, still lay inert in a slow spreading pool of blood behind the grill in the bank down at Covelo. The other reason was in the forty-pound haversack that leaned against the stubby pine. A life of lurid pleasure and affluence, crudely

visualized by Hodd's moron brain, was guaranteed by the contents of that pack, Hodd was certain. Forty pounds of gold and silver coin! A life's earnings for a man such as Hodd. Surely it was worth the chances he had taken, though amateur nervousness rather than innate viciousness had caused Hodd to shoot when the frightened cashier had appeared to be reaching under the counter.

That flat, echoless report within the stone-walled bank had likely attracted no more attention than would the thump of a falling ledger. Also, if any had noticed Hodd as he trudged down the town's one dusty street, after locking the bank's front door, they would consider it of no more importance than any other of the countless times they had seen the eccentric youth do the same thing. The town considered Lige Minton's Hodd as a harmless half-wit. Hodd ground his teeth at the thought. This would wake the sleepy little cow town up. They would see how shrewd he could be, and how dangerous.

But if one walks, one must leave tracks and Hodd had not felt entirely at ease until he had turned from the road into the tangled chapparal at the base of the Pinnacle. With fire behind him, there would be no tracks. Also, with a fire gutting the Cedar Creek canyon on this August day, those nosey forest rangers would have plenty to do without spending their time in beating the brush of the canyon in search of a lone pedestrian.

Hodd had made use of all his cunning in starting that fire, not only because of the need for leaving no sign of its origin but also because it was necessary that he should put much distance between it and himself

before the telltale smoke was noticed by the lookouts on high-flung peaks. He chuckled as he thought of how carefully he had crawled to the center of the huge fir that bridged the narrow, steep-walled gulch and there, in the dry sap wood that was powdered by generations of wood cutting insects, had kindled his smokeless blaze of moss and hardwood twigs. For a half hour, perhaps longer, that blaze would eat into the punk of the dehydrated log until at last a flaming brand would drop to the foot-thick carpet of needles in the gulch. The steep and narrow ravine would draw fire better than did the latticed mud chimney of the hovel that for twenty years Hodd had called home.

As the watcher gazed, he saw a puff of smoke, pearl gray at first, float gently upward. His judgment had been good. The next burst of smoke was pitch black, undershot by orange and yellow tongues that leaped and quivered. The needles were burning more fiercely than Hodd had hoped and even as he looked two parallel pillars of smoke, white as a summer's cloud, told him that the chaparral on each side of the gulch had caught. He need worry no longer about any tracks he might have made on the mountain side.

But as his eyes measured the distance up the knife-edged ridge from the Pinnacle to the summit where, to his mind, lay safety, a blast of hot wind fluttered the rags of his torn shirt. Haste was imperative if he would win to that summit in advance of the greedy fire. Hodd had not figured on wind so early in the day. He swung the heavy pack again to his shoulders, in his hurry carelessly adjusting the padded strap which he wore, Indian fashion, across his forehead, and lunged into the tangled brush that clawed and reached to hold him back.

After ten minutes of breath-taking labor, Hodd glanced over his shoulder. The fire was gaining. Already a black pall had pushed a thousand feet into the air, raining down a storm of ashes that grayed the listless leaves. Falling sparks stung his sweating body as they struck. Some of those sparks would catch soon and ring him around with fire. He could never make that summit now, Hodd knew. He must flank the apex of the flaming triangle that was eating its way up the mountain.

He turned abruptly at right angles and plunged toward a gulch that bit deep into the mountain side to the left of him. The going was a bit easier and once he had crossed that gulch he could leisurely make his way to

the summit by another route. Hodd cursed the heavy pack that impeded his speed. Unencumbered by its weight, he could easily escape the fire, but no thought of leaving his ill-gotten gains entered his head. Too long had he been planning this to give up now without a struggle.

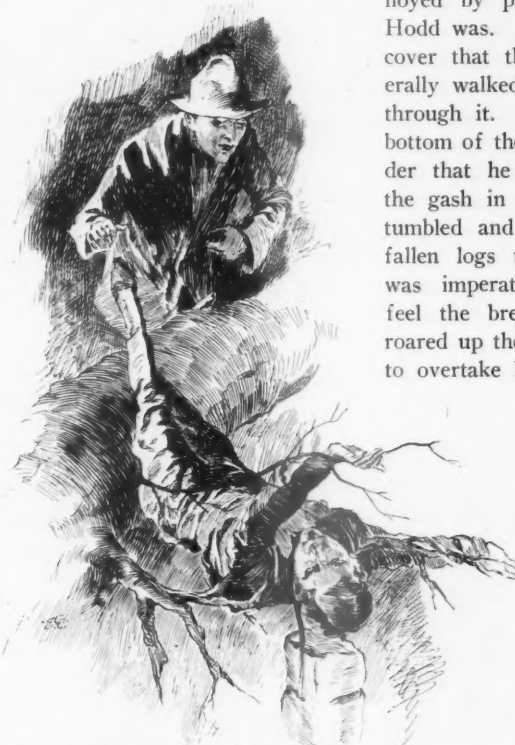
The way into the gulch was steep, set at the sharpest angle mountain soil can endure and the shoulder-high growth of chemisal and manzanita made the going heart breaking, even to one not annoyed by pack and heavy rifle as Hodd was. So thick was the ground cover that the hurrying fugitive literally walked over brush rather than through it. So then, when near the bottom of the barranca, it is no wonder that he should choose to cross the gash in the mountain side on a tumbled and twisted mass of wind-fallen logs that bridged it. Speed was imperative. Hodd could now feel the breath of the flames that roared up the mountain in their haste to overtake him. The log on which

he chose to cross was an ancient fir, its huge diameter a mockery, so long had the rotting wood been exposed to the elements. Between its persistently clinging bark and its eighteen inches of pitch-preserved heart-wood the tree was merely dry pulp. Used to log foot-bridges, Hodd start-

ed to cross on the lichen covered fir with no more thought of danger than if he were on a highway. His eyes

were on that roaring menace that raced toward him from the lower levels. So when the rotting bark crunched beneath his feet and slipped aside it found him all unprepared. He fell like something inanimate, the rifle dropping from his broken right arm and his feet, caught in the tangled windfall, forcing his body face upward, a pitch-hardened knot digging into his spine.

The initial pain of his fall was so great that Hodd was some minutes in realizing what had happened to him. His first impression was a blaze of light, shot through with whirling stars, then, as reason became supreme, he knew he had slipped sideways from the fir, breaking his right arm against a projecting limb and that the head strap of his pack had slid from his forehead to his throat and was choking him as the haversack swung free in thirty feet of space. Hodd struggled fiercely—once. His foot was immovable. The pain of



THE FIRE-FIGHTER DROPPED HIS SHOVEL AT SIGHT OF THE STIFFENED BODY BENT ACROSS THE OLD FIR

his arm and the realization of his danger beaded his brow with icy globules. Hodd sobbed for breath as the strap, with its forty pound leverage, bit into his windpipe. His huge body, animal-like in the presence of death, heaved and writhed in a vain attempt to admit air to his tortured lungs. Hodd gazed foolishly at the pink-edged bone that protruded through flesh and shirt sleeve and could not believe that it was part of the machinery of his magnificent body. He could not get air. He was choking—choking—. His face smarted from the rain of incandescent sparks. Black oblivion engulfed him. The forty pounds of coin swayed gently in the hot blast that fluttered the scorching leaves.

* * * * *

"For God's sake! Ranger, come here!" A fire fighter,

whipping back the flames unmindful of blistered face and singed hair, dropped his shovel at sight of the stiffened body bent across the old fir. "Here's a man killed by the fire."

But it was not so. They saw that. The racing flames, with that freakish humor that marks all forest fires, had never touched the pitiful thing that had been Hodd. The haversack still swayed, gently as a playground swing, as the men cut the strap from the discolored throat.

"Say Ranger, did you hear how that fellow in the bank is getting along?" the fireman asked.

"All right, I hear," the ranger answered. "Hodd's shot was too high. It just furrowed the cashier's scalp and the worst injury he got was when he struck the corner of the grill in falling."

The Little Aspen Tree

By JOHN A. KNOLL

I LOVE the little aspen tree. When a devastating forest fire sweeps up the canon, through the mountain pass, or over the heavily timbered plateau, leaving in its wake nothing except the grim, gaunt sentinels which once were beautiful firs, pines, or hemlocks—then the little aspen comes, seemingly from no other source or cause than a signal from the gods. It springs up, the first to show its optimism, and in a few years has covered the desolate strip of country with a beautiful, quaking green; then the evergreens seem to know that they, too, now that they have a protecting cover, must spring into life.

The little aspen is a compass in itself. Wherever it stands so that the sun's rays strike the smooth trunk, the bark is always white and chalky on the south, southeast, and southwest; and it blends into a distinctive green on the north. There are no exceptions—nature's only stipulation is that the traveler must not judge by a tree which the sun's rays cannot reach. This little trick guides the caribou hunter of the Arctic, the antelope photographer of Arizona; it is invaluable to the lonely prospector of British Columbia, to the ginseng hunter of Minnesota. I have proved it correct in every Western state except one, and I have not camped in that state. I have seen the little aspen at altitudes of approximately eight thousand feet in Utah and Colorado, at nearly sea level in Delaware, in the rough country of Ontario.

The little tree is native to at least thirty states, nearly every province of Canada, parts of Mexico, and Alaska. It is known by many names: quaking aspen, white poplar, poplar, popple.

So, if ever you happen to be in a strange wilderness, your compass made useless by iron ore beneath you, remember and look for the little aspen tree with its leaves shaped like those of a cottonwood, only smaller,—



THE LITTLE ASPEN, "COMPASS OF THE WOODS."
WHITENS ITS BARK FROM THE POWDER BOX
OF THE SUN

shiny, trembling leaves,—a tree quivering with beauty, a "signal from the gods on high Olympus."

The Gallantry of Trees

By SUSAN P. THEW

(With Photographs by Thew, Inc.)

AMONG the many remarkable attributes which distinguish the family of trees, gallantry stands near the top. It is always in evidence in tree life—a gallantry that embodies courage, and endurance; adventure and valiancy; at times debonair, but always possessed of a quality and persistence whose appeal continues even after death.

The continuance of every form of life which has developed to the point of a sustained movement depends on environment. Nature's method of determining fitness appears to be an experimental process covering ages, each form of life being subjected to repeated adventures into new environment. The history of this adventuring and its effect on the life of any species is most absorbing.

All youth with its ambitions and hopes is personified in the little evergreens. When they are at home in the woods they are playful, assertive; some delicate but tenacious; others rugged or insinuating. Some environments may cause them to be even desperate.

Taken as a whole, what a gallant crew are the evergreens! Their dress is like a coat of mail calculated to meet emergencies. They have a language of their

own to whose interpretation one must bring a mind made humble with understanding, and reverent with love. Walk among the Sierran meadows and listen carefully while you watch.

"Look at us! Here we are!" exclaim the little trees that have ventured into the lovely meadows in Sequoia National Park. "Sometimes we can hardly stand up, it's so soft, but we have all the meadows to play in, and we are going to fill them full of trees."

"Do you know that there were lakes here once, and that our friends, the stream and the melting snows, brought

earth on their bosoms and gradually filled them up and made meadows for us to live in? Now it is our business to cover the meadows. Aren't you glad He made so many of us to grow together?"

Go into Lassen Park and become one of its busy members.

"Just watch us," say the youthful trees around the foot of the Cinder Cone, a portion of a California volcano. "We're going right up that hill. See us doing it! Some of us will reach the top, just see if we don't!"

Up the Cone they go, one by one, getting a foothold here and there in the ash and the lava.

"Who dares to



The Army of Occupation

"Here we are! Look at us!" exclaim the little trees venturing into the boggy mountain meadow at Quinn's Horse Camp in the Sierras. "Our business is to cover this place and look at us doing it!"



Bravely They March Forward

The little trees at the base of Cinder Cone, at the right. The snow-capped peak is Lassen Peak, in Lassen Volcanic National Park, California

do what we are doing?" call gay voices from the Boiling Lake in Lassen Park.

"It's all right if you like it, but we prefer cooler water," answer the soft tones of the big pines high up the bank.

"Oh, it's fine!" assure the eager young voices of the little trees growing on the islands. These trees bear the heat of this the largest lake of boiling water known to man. The steam constantly rises from the churning waters which boil against the low shores and heat their small island homes. Yet they seem to thrive in such surroundings. At least they are surely safe from the hand of man, for no human being would dare to venture to their retreat.

"Isn't he cute? That's our baby,"

murmur the stately yellow pines in the Plumas National Forest. "He's growing fast and some day he will be a big husky. He has danger and trial before him. The

Fire Spirit may come along and score him too deeply; or older trees strangle him or shade him too heavily from light and sun. If he can breast such perils as these along with the undiscerning lumberman's ax, he will become a full-sized tree—a vibrant upstanding yellow pine, over whose splendid bark-covered body the chipmunks and squirrels may frisk and play, and in whose plumy green crown the birds may nest and rear tomorrow's feathered songsters.

When trees reach maturity they seem to lose their blitheness and their spirit of adventure. No longer for them



"Who Dares To Do What We Are Doing?"

Trees on the hot mud islands in Boiling Lake, Lassen Volcanic National Park, California. They are safe from the hand of man for no one would dare venture to their retreat



The Oncoming Generation

"Isn't he cute? That's our baby! One day he will grow into a big husky," so say the stately Yellow Pines in Plumas National Forest, California

the pioneering with its risks! Strength, endurance, and the joy of life is now theirs. Dignity rules and they assume the thoughtfulness of purposeful existence. The scars of time and stress are worn as badges of honor. Undaunted and undiscouraged through the cycle of birth and youth they have struggled and maintained maturity, in rank and file, a gallant soldiery.

Go to Sardine Lake at the foot of the Sierra Buttes in Sierra County, and you may hear this:

"My life work is to split this rock; and I am striving to do it," comes the voice of a lonely sentinel by Sardine Lake below the Sierra Buttes. "I was brought here a seed, and dropped into a crevice. I had so little room that I couldn't grow fast. After a while I became stronger and then I learned why I was here. It was hard work at first. But now I love to set my roots deeper and deeper into this rift and will you

notice how I am widening it? The rock and I have become friends and when I win, he just takes a new hold and we go at it again. It's a great struggle—our little game of life, but it is a pretty one; and we both enjoy it."

The voice ceases but he swings back and forth with the winds, strengthening his roots, glad in his day, unaware that his gallant struggle to accomplish his work and make good his gift of life is adding to the rhythm of progress on earth.

Climb into the heights of the great Sierran range some happy summer day and witness what it means for tree life to maintain itself at these altitudes. Yield an earnest attention and within you will be kindled sympathy and a deep admiration for these dauntless pioneers.

"And what of us?" come grim voices from far up

the rugged mountain heights, where those gallant soldiers, the timber line trees, defy the fiercest elements of Nature and carry life to its limits. Crouched there, singly or in small groups, they successfully hold the banner of the trees against the terrible foes of storm and wind which constantly charge their heights. Bending their backs, they have borne the terrific onslaught of ice and the huge burden of snow; they have laughed to scorn the ravening winds, the torrents of rain; they have met and turned the rapier thrust of lightning; and yet remain a squat, gnarled, twisted, powerful and undaunted race. Indomitably they hold their outpost and chant their battle cry. The young of this warrior race of trees are deeply wrapped in snowy blankets through long winters, while over their courageous heads the full chorus of the winds sing glorious battle hymns. Among those who wear the dress and share the characteristic traits of the evergreens, is a clan of giant trees whose outstanding feature is great length and strength of life. Two branches of this



royal family honor our country with their presence. To be permitted to stand among them with open mind and attentive spirit, is to be everlastingly impressed with some of the intention of life. From their youth to their age they offer wisdom.

"I love to hear them talk for it is *their life*," came the youthful tones of a group of young Sequoia sempervirens from where they grew in a lovely group around the great mother stump in Humboldt County.

"We did not grow from seed," one of them softly said, proudly looking at their circle.

"No but some of our friends did," another thoughtfully answered as it gazed around.

"Which is the prouder thing?" asked the tallest of the royal circle, its graceful slim body swaying as it talked. The others listened eagerly: "Would you be prouder to have received your gift of life from the seed your mother-tree had

A Very Hercules

Whose calm accomplishment of life has been the splitting of a great rock



"A Squat, Gnarled, Twisted, Powerful and Undaunted Race."

A timberline tree on Big Arroyo Canyon



Gallant Resistance Personified

Bowed by burdens of snow, but still valiantly "carrying on"



On the Redwood Highway, California

Nothing seems to daunt or discourage the *Sequoia sempervirens* (the Coast Redwood). About the old stumps, rings of new growth appear

carried to perfection on her brow, maturing it with great care in sunshine and guarding it through storm, finally to lay it gently on the breast of Mother Earth, and stand protectingly over its young life until it could go alone? Or to have received the gift straight from her heart which was pressed so closely into our Mother Earth? Men carried away the wonderful column of her body, but this could not destroy her marvelous heart which beat gallantly on and on with pulsations of life which became trees like ourselves."

A tree friend standing near who had listened to this conversation, leaned across to say, "I came from my mother's brow, but whether from mind or heart, isn't it glorious just to belong to the old Sequoia clan, head and shoulders above all surrounding life through storm or sun?"

As if in answer to this thought, the mellow richness of the centuries rang out in the voices of *Sequoia gigantea* from the western Sierran slopes. "How difficult it must be to learn the lessons of life in the short time many of our friends around us have." The sub-

dued tones came from one of the Sequoias which stand near the Sherman Tree in Giant Forest.

"How can they learn of the wisdom of Mother Nature when they do not live long enough to compare her work?" another asked.

"But they do not need to understand her wisdom to fulfill their purpose of life," said a voice rich with the wisdom of many centuries. In it were all the harmonies of life's experience merged into that reverential obedience we term understanding. There was tolerance, love, and a great and mighty patience over which lay the sunshine of serenity. It was the voice of the Sherman tree. "I have watched them come and go, meeting all the conditions which a tree's life must meet to maintain existence. While they do not live to our length of life, they give their best in the struggle for existence; and their maintenance of life is their willingness to serve. We may and do live longer, but our wisdom of the years serves but for a better understanding of all life." The tones ceased and silence rested on their forest home.

Secretary Work Urges Conservation For The Public Domain

HUBERT WORK, Secretary of the Department of the Interior, in his annual report pointed out that unreserved public lands comprising 184,726,846 acres under the Department of the Interior are now being utilized for grazing by private owners without charge or control by the Federal Government.

"This gratuitous use of the public domain as an unrestricted range for livestock" says the report, "has resulted in overgrazing. Wide areas have been almost denuded of native grasses. There is no limit under the law to the number of animals that may be grazed on the prairies regardless of the growth of grass available. . . . The Interior Department is without authority to eliminate this pest. . . ."

"Enactment of legislation authorizing the establishment by presidential proclamation of grazing districts and the issuance of permits therefor to bona fide residents of the locality, or to those engaged in the livestock industry in the areas affected, is urgently needed. . . ."

"Fees to cover the actual cost of administration of these privileges should be exacted. The surplus, if any from this source, should be divided between the Federal Treasury and the State in which the lands are located. This system would not interfere with the continued utilization of mineral resources on public lands and would still permit homestead entry on the few suitable remaining tracts.

"A bill to accomplish this object was before Congress last year, but failed of passage. It is recommended that this legislation be enacted at the coming session of Congress to protect the grazing privileges of stockmen, to stabilize the livestock business of the Western States, and to preserve the remaining public domain from ultimate destruction."

Another striking recommendation by Secretary Work is the repeal of the section of the Timber and Stone Act related to timber lands. Under this act complete owner-

ship of tracts not in excess of 160 acres may be acquired by private citizens at a minimum price of \$2.50 per acre. In the last few years the lands have been sold on the basis of an equitable appraisal by expert timber cruisers. While this method has reduced speculation at the expense of the Government it has resulted in the devastation of many scattered areas of good timber land.

Secretary Work believes further that the sale of Government-owned timber on public lands should be discontinued for a ten-year period, pointing out that Uncle Sam is the owner of more than one million and a half acres of valuable timber land in the State of Oregon, containing 42,000,000,000 feet of standing timber, all recovered by suits from various railroad and wagon-road companies. To quote further from Secretary Work: "The timber upon these lands is now subject to disposition by the Secretary of the Interior under the act of June 9, 1916. Outside of the areas included within existing National Forests, and those held in large blocks in private ownership estimated at 371,000,000 acres, this body of timber constitutes the largest and most valuable in the United States.

"The law makes provision for payment of \$2.50 per acre to the railroad and wagon-road companies out of the receipts from the sale of this land and timber, and of payment of a percentage of the balance to the county in which the lands are situated.

"I believe Congress should authorize discontinuing the sale of all Government-owned standing timber on public lands for a 10-year period. In Oregon this plan would defer temporarily the amount going to the railroad and wagon-road companies and the counties from timber not yet sold. The increased receipts which would accrue from later handling of the timber and resources would, however, more than compensate counties and others for this delay in disposition."

The Annual Meeting at Richmond

The joint meeting of the annual sessions of The American Forestry Association and the Southern Forestry Congress planned for January 6 and 7 at the Jefferson Hotel, Richmond, Virginia, bids fair to start the year 1926 as the best in conservation history.

Among the speakers who are expected to take part are Governor Lee Trinkle of Virginia, William A. L. Bazeley of Massachusetts, Senator Pat Harrison of Mississippi, Col. William B. Greeley, Chief of the Forest Service, Governor A. W. McLean of North Carolina, Dr. Douglas S. Freeman of Richmond, Virginia, H. L. Tilghman of South Carolina, and George D. Pratt of New York. In addition to these there will be a large number of men who are active in Southern forestry.

Three major subjects will be considered by the meeting—National Forests, reforestation and State forestry development. On the evening of the 6th there will be a banquet at which Hon. Harry Flood Byrd, Governor-Elect of Virginia, will preside as toastmaster.

A number of other meetings will be held in conjunction with the joint sessions, including the Appalachian Research Council, the Appalachian Section of the Society of American Foresters and the Virginia State Chamber of Commerce Committee on Forestry.

All members of The American Forestry Association and their friends are urged to attend the Richmond meeting. Association headquarters will be at the Jefferson Hotel and those desiring reservations should write without delay either to the Hotel or The American Forestry Association, 1523 "L" Street, Washington, D. C.

American Oil from Chinese Trees

A New Industry in the South

By GEORGE H. DACY

PREJUDICE against modern innovations and strict adherence to ancient customs may cost China the loss of a profitable industry and pave the way in northern Florida for the commercial production of American oil from Chinese trees.

The tung-oil business which has been anchored securely in China for many centuries is undergoing a change of base. It is another story of progressive America not being satisfied with the antiquated methods of the Orient. Tung-oil, important in the paint and varnish business is one of the best drying oils known. When used in varnish, this material tends to make the varnish waterproof and reduces its liability to crack. The oil is also used in the manufacture of oilcloth and linoleum, as a dressing for leather, and as an ingredient in the manufac-

ture of soap. It has largely replaced the fast-disappearing copal gums. Recently, the United States has been purchasing from 73,000,000 to 100,000,000 pounds of tung-oil worth from \$11,000,000 to \$15,000,000 annually from Chinese producers.

American paint and varnish manufacturers grew tired of paying tribute to Chinese pirates and unscrupulous dealers. That is why the American Paint Manufacturers' Association in cooperation with the national Department of Agriculture and the Florida State Experiment Station has plumbed the possibilities of tung-oil production in northern Florida. Finding that the tung-oil trees would prosper in the land

of our last frontier, paint manufacturing companies have set out more than 1,000 acres of Chinese oil trees. These plantings are the hub of a new and novel industry which



THE BEAUTIFUL FLOWER CLUSTER OF THE TUNG-OIL TREE. THICKLY BORNE, THE BLOSSOMS ARE WHITE, STRIPED OR TINGED WITH PINK



A YOUNG TUNG-OIL GROVE IN FLORIDA. THE RESULTS OF THE WORK BEING DONE AT THE FLORIDA EXPERIMENT STATION WITH THIS TREE HAVE BEEN DIRECTLY RESPONSIBLE FOR THE ORGANIZATION OF A COMPANY FOR THE PRODUCTION OF THE OIL ON A COMMERCIAL SCALE IN FLORIDA

promises to attain significant importance. Nine-tenths of the tung-oil produced in China is distributed through the seaport of Hankow. The oil is transported from the western provinces of China over the stormswept Yangtze River. Many boats are wrecked. River pirates and bandits collect high tolls. The districts through which the boats pass also exact heavy taxes. Dishonest Chinese dealers have perfected methods of adulterating the tung-oil with tea oil, sesame oil, tallow and peanut oil in order to increase the available supply.

The same crude processes of oil extraction which have been employed for many centuries in western China are still practiced. The harvesting, shelling and grinding of the tung-oil nuts are primitive processes. The fruits remain on the ground until the husks decay sufficiently so that they can be broken easily and the meats removed. After the nuts are cleaned of trash they are roasted and then ground in crude stone mills operated by oxen or water buffalo. The meal is mixed with water and steamed. Then it is mixed with straw and pressed under huge wooden wedges. As much oil is wasted in the byproduct as is extracted.

Under such conditions, it is small wonder that American manufacturers took the initiative and several years ago began the development of a domestic tung-oil industry in our southernmost state where climatic and soil conditions are propitious. This move was made in desperation when all their efforts to modernize the Chinese industry failed. The production of the Chinese growers has for many years been at a maximum. There is no hope of increasing the Chinese supply except by the institution of more efficient methods and the utilization of modern machinery.

A score of years ago, the United States Department of Agriculture obtained a small number of tung-oil nuts from Consul-General L. S. Wilcox, at Hankow, China. These seed were planted at the national plant introduction gardens at Chico, California. Subsequently, the trees were grown for test purposes in the Carolinas, Georgia, Mississippi, Louisiana and Florida. The first plantings were made at the Florida Experimental Station at Gainesville in 1912, where tung-oil trees have been

grown successfully from that time to this. Thus the national tree of China has proved its adaptability as a source of commercial oil south of the American snow line.

When the writer recently visited Gainesville to look into this young industry now establishing itself in Florida, he found there producing trees which resemble the ordinary Japanese varnish tree used for ornamental and street planting. The Chinese trees with their wide-spread branches grow to be 20 to 35 feet high, the trunks ranging from ten to 18 inches in diameter. The tree sheds its foliage in the fall. It blossoms from March 1 to April 15 in northern Florida. The pink and white flowers are borne in clusters. The fruit, about as large as small apples two to three inches in diameter, is dark

brown in color when mature. From three to seven compact brown seeds occur within each husk. These seeds look like large castor beans. The ripe fruits fall during the late autumn. Harvesting is a lazy man's job as it consists merely in picking the fruits from the ground where they drop.

The tung-oil trees bear nuts from three to six years after planting. Chinese records show that the trees yield from 20 to 50 pounds of nuts or more a year. The seed contains from 33 to 49 per cent oil by weight. Commercial practice estimates three pounds of seed for one pound of oil. The pomace which is a byproduct of the oil extraction is worth approxi-

mately \$25 a ton for fertilizer. The Bureau of Standards has perfected a simple machine which will crack and remove the tenacious husks and thus eliminates a previously arduous hand task. By certain modifications, ordinary oil mill machinery can be adapted for the extraction of tung-oil.

During 1924, the experimental tung-oil trees at Gainesville yielded an average crop of 27.3 pounds of cleaned seed per tree, these trees being 12 years old. One of them made a production of 89 pounds of seed illustrative of extraordinarily high yields which sometimes occur. Generally, 70 of these trees are planted to the acre—25 feet apart each way in the row. The price range of tung-oil during the last dozen years has varied



GROWING IN A CEMETERY AT TALLAHASSEE, THIS IS THE LARGEST TUNG-OIL TREE IN FLORIDA

from \$.10 to \$.45 a pound. On the basis of a yield of 27 pounds of seed per tree and an average oil value of \$.22 a pound, this unique crop from Chinese trees grown in Florida will yield a cash return of about \$415.80 an acre for a grove 13 years old.

Agricultural science down Florida way does not predict that any fabulous fortunes will result from tung-oil tree culture in that neighborhood. It does recommend the crop for the occupation of vast tracts of idle fields in northern and central Florida.

The plantings in the neighborhood of Gainesville have already reached a size which justifies the establishment of a special oil mill at that point. Such a plant will

shortly be installed. It will be one of a chain of such factories which in the course of time will be erected as the tung-oil industry spreads over the territory where it is assured of favorable growing weather free from extremely cold temperatures. The potentialities of the new industry are endorsed by the fact that 70 of the leading paint and varnish companies of the United States are its sponsors. With these manufacturers, it was a matter of self defense. Dissatisfied with China as a supply source, they determined to foster a domestic industry. Florida's agricultural calendar has thus been extended by the addition of a new crop—a tree crop endorsed by science and acceptable to the farming fraternity.



The Voice of a Burned Forest

By JENNETT SPENCER

Old, gray, fantastic ghosts of fire-killed trees—
Gaunt scars in death—hopeless and desolate,
Your voice is no more vibrant with bird songs
Nor cadenced with the music of the breeze,
That, perfume laden, stirred the harmony
Of your dead stillness in a faint refrain;
But sharp with raucous laughter of despair,
That cries out horribly against the fate
That brought you down dim centuries of life,
Into an age that mocks your majesty
And turns your forest home into a grave.

Protest! Oh, grim, old ghosts of vanished grandeur,
Against the heartless carelessness of men,
Against the city's senseless defamation
Of templed shrines where Nature sat supreme.
Lift up your voice in eloquent entreating
To stop the crime that robbed you of your life,
Make sure for future years, the calm fulfilment
Of ripening beauty, in a scheme divine.



Sapling Sam's Scrapbook

SOMEONE has recently dug up the following extract from a report by a forest ranger back in 1910. (It appears that he had been surveying a tract for a ranger station.) "The errors not being considered excessive, the survey was closed, containing an area of approximately 21.7748077615 acres, about one-fourth being goose pasture and the balance suitable for Rangers and other stock."

Politicians Should Use These in Their Fences

"Will white oak posts last longer cut in September?" asks a seeker after knowledge and offers the following assistance to his informer: "An old man told me they would last 100 years if cut in September and not trimmed until the leaves dried. He said he knew because his father tried it twice in his lifetime."

And Probably Never Will Again

"It was sure a hard winter. Cows died this year that never died before," writes a stockman from the "great o n spaces" of the West.

Commenting on Mr. E. T. Allen's "50,000 Firebrands"

"Well Mr. allen Dear s'r I am hartley glad I got a holt of your forestrey association paper it gives me good information i will use all the means and influence that I can to help protect this forest land." Sent in by Bill Cantrell, of Coker Creek, Tenn., who says his occupation is "farming and fire fight'ng."

And Folks Go Clear to Africa for Thrills

While traveling through a grove of maple trees near the Snoqualmie National Forest, Junior Forester McArdle was suddenly assaulted by a strange wild beast which dropped from the skies onto his shoulders and began to remove one of his ears. Startled, he dashed four or five hundred yards up a steep hill, backwards, against a strong wind, and, being out of breath, paused to see what manner of animal he was transporting. Behold, it was a life-sized monkey! (12 inches tall.) As the creature would not listen to reason and as the aforementioned ear was in considerable jeopardy, it was necessary to secure a club and initiate a determined drive on the ape, which at length was persuaded to shin up a tree and stay there.

P. S.: Later it was found that the monkey was the pet of a party of cascara peelers—evidently trained to climb the trees and peel the topmost branches, and then drop down on the heads of unsuspecting travelers!



**GET THE HABIT, Nothing to it—
All the reg'lar fellows do it—
Break your match before you drop it,
FIRE'S our bugbear—help us stop it!
—B. C. Forest Service.**

One Bair Hunt

(Just as written by an Arkansas contributor.)

One morning in the spring of the year seven of my relations and myself went bair hunting. went to the mountains. we started one morn'ng early we had six dogs. our dogs took after a bair then we had to travel on after a place wich is known as slicks. slicks is a place where ivie, laural and dogwoods is grown up togeather and no timber to amount to anything. the bair trails in th's cluster of bushes to travel these trails you will have to crawl on your hands and knees. we then started craul'ng along not known when a bair might attack us but we went on after our dogs till it come night on us there in that laural thicket. we had to spend one night our affair was we made our bet aut of moss in between some rocks, my pellow was made of a rock. we had nothing to eat till we returned to our camps. the dogs had a fight with the bair and it went up a tree in the morning we hollow to our dogs and they started on after the bair. About ten o'clock we killed the bair in a place where they call the deval court house. then we got out and come to our camps. we had bair meet too eat and it was a fright to watch us eat.

"Hurding Cattle"

I was hurding catle in the smokey mts and I found fifteen ratlers up till geather'ng time. then when I went to geather I found a denn of ratlers. they was thirty five ratlers and one copper head.

Once I was fishing and went to go down over a bluff of rocks and saw where something had been wallowing and was standing wondering what it could be when I saw the snake coming. it looked spotted like and a ruffel like white around its mouth. it was looke like it was eight feet long and I had no gun or any thing to kill it

I went on speedly.

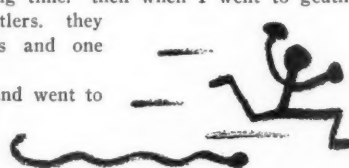
my snakes hunts and my bair hunts doesent rank much together.

Fire May Clean It Out!

"Scrub Oak in Bath County"—Title under a picture in a publication of the Virginia Forestry Department.

And the Katzenjammers Might Have Grown to Manhood

The Southern Lumberman states that there would be 475,687,361 acres more of timber if the comic supplement had not been invented.



Sapling Sam invites contributions to his column. Address him in care of The American Forestry Association, 1523 L Street N. W., Washington, D. C.



EDITORIAL

The Forester's Warning

ONCE write into law some of the proposals which western stockmen are urging upon the Senate Public Lands Committee for the handling of the National Forests and "the whole plan of conservation—range, timber, water, wild life, everything—is shattered on the 88,000,000 acres of forage-bearing lands in the National Forests," declared William B. Greeley, Chief Forester of the United States, in an able article, entitled "The Stockmen and the National Forests," published in the November 14 issue of *The Saturday Evening Post*.

For daring to write this article, and thus warn the American public of the danger of the attack upon its forests, the Chief Forester, we understand, has been severely criticized by some of the big stockmen. It is reported that they have demanded his resignation, so incensed were they over having their program held up to wide public scrutiny. Perhaps they feel that the Forester's analysis of their proposals is unfair, but a reading

of the stockmen's own testimony at the hearings before the Senate Public Lands Committee amply justifies Colonel Greeley's clear-cut presentation of the legislative menace of the grazers' program.

In informing the public, the Forester, with his characteristic courage, did his duty as he can always be counted upon doing. The National Forests—the property of the American people—are under attack. Certain powerful stockmen are seeking to have Congress pass legislation that in application will virtually break down the administration of the National Forests for their primary purpose of forest conservation and water protection. The question is first and last a public one, and one to be settled by the public in the light of a clear understanding of all the facts. The Forester is responsible, not to the stockmen, but, to the public, and in pursuance of his trust, he could not do otherwise than give the public the facts.

Secretary Jardine's Statement

WILLIAM M. JARDINE, Secretary of Agriculture, in a statement issued December 5, made public his position in respect to the demands of western stockmen that the grazing administration of the National Forests be changed. The secretary said, in effect, that he is opposed to the western stockmen being granted vested or property rights to the forage in the National Forests, or to any program that will grant special class privileges to the grazers. He declared further that the Department's long-standing policy of basing grazing fees upon the value of the forage should be continued, increases being fairly adjusted to meet economic conditions in the livestock industry. The present grazing controversy, he thinks, will be adjusted without difficulty, and he expresses a desire to develop the western livestock industry along more secure and profitable lines, as far as may be consistent with other resources and public interests.

Although believing that ample authority to stabilize the grazing administration of the National Forests is now fully vested in the Department, the secretary ap-

parently will not object to giving grazing on the forest ranges a more definite legal status. But, said the secretary, "any legislation dealing with grazing should give the Department full latitude to control and adjust the use of the National Forests, so as to protect other valuable resources and maintain the productiveness of the ranges themselves." The government, he said, must have complete freedom to exclude or restrict grazing in areas where it has proven injurious to young timber, or where grazing has damaged valuable water resources, or where adjustments are required to meet the needs of recreation and wild life conservation.

Secretary Jardine's views are expressed not in a spirit of hostility towards the stockmen but as a clear statement of public policy. He is a western man himself, and as a youth rode the western ranges as a cowpuncher. He is, therefore, thoroughly conversant with western conditions, and recognizes the importance of a grazing policy for the National Forests which will be fair to the industry and to the other interests involved.

The wisdom of his course in agreeing to grazing legislation at this time, however, may well be questioned, particularly when it is admitted that such legislation is not necessary to enable the Department to deal equitably with the grazing problem. Col. Henry S. Graves, formerly Chief Forester for a period of ten years, points out in his exhaustive article on the public lands controversy, published in this issue, the dangers attendant upon any attempt at this session of Congress to write grazing regulations into law. It is certain that the measure proposed by the Secretary, once it is presented to Congress, will be hailed by the grazing interests as an opening through which to force some of their radical demands. Legalizing grazing on the National Forests by a specific act of Congress is largely a matter of legislative form. It is not immediately urgent and can well await a time when an organized attempt to break

down the grazing administration of the Forests is not at its height.

Nevertheless, the Secretary's clear-cut statement is assurance that the drastic proposals of the grazing interests will meet vigorous opposition from the cabinet officer responsible for the administration of the public property involved. The nation is fortunate in having a man of Mr. Jardine's understanding and courage as its Secretary of Agriculture. His stand is not only to be applauded but it stamps his administration of the forests with the slogan—"For the greatest good of the greatest number." The secretary may be assured that he will have the strong support of individuals and organizations throughout the country who have become thoroughly aroused over the drive led by the big stockmen to undermine the greatest conservation structure of the American people, namely, the National Forests.

"Fire Weather Ahead!"

FIRE weather breeds fire. Dry material burns readily. These are truisms. But that fire weather is predictable, and that varying inflammability of the forest is exactly determinable so human conduct may be guided in meeting the hazard, is not so well known. Among all the efforts and expenditures to cope with the forest fire evil, probably none is accomplishing so much at so little cost as the contribution of the meteorologist. It is he who can sound the warning of the dangerous periods of fire hazard to the public and to the protective agencies through his ability to predetermine conditions of atmospheric humidity.

This work is being pioneered on the Pacific Coast, where it was inspired by the necessity of protecting vast areas of public and private forests against extreme and sudden changes of forest inflammability that perhaps are not quite paralleled elsewhere. The principles being established, however, are applicable elsewhere and are really fundamental to the most effective development of forest fire protection. High barometric pressures in regions containing dry and perhaps heated air, coincident with low pressures elsewhere, afford knowledge that a highly dangerous wind will take its path from one region to another, fanning all old fires and facilitating new ones. More difficult of forecast, but often extreme, are more local drops of atmospheric humidity which in a few hours suck all forest material dryer of its moisture content than do weeks of protracted dry weather. The forest becomes virtually explosive before the sudden change is realized. Thus fire days may be worse than fire seasons. The facilities and alertness built up to meet the cumulative progress of a fire season may fail utterly unless there is immediate warning of the crisis at hand.

Study of these phenomena has resulted in what might almost be called a new science and one which requires constant cooperation with forest agencies to check the

weather conditions with the behavior of fire in the woods. In the Pacific Northwest, the Weather Bureau, forest protective agencies and logging camps have jointly maintained the necessary instruments and means of communication. The work is no longer experimental, but has become an essential part of forest protection. Public and forest officers are warned daily by press, wire and radio of the approaching changes in forest fire hazard. Land clearing, logging and brush disposal are regulated accordingly, also the conduct of campers and forest travelers. Fire fighting crews are augmented or reduced as required.

So far, although the Government is vitally interested through its great National Forest holdings, and forest conservation in general, and although the protection of life and property from forest fire is as important to the public as protection from storm and other hazards dealt with by meteorology, Congress has not provided for this work. The Weather Bureau can give it only such attention as can be spared from other duties, while expenses and instruments are provided by lumbermen and public protection agencies. It is much as though the frost and storm work of the Weather Bureau were carried on through subscription by farmers and shipping interests, with none concerned assured of any continuing program.

In recognition of the importance of this work, The American Forestry Association recently urged upon the Bureau of the Budget an appropriation of \$20,000 that the Weather Bureau might make the activity a definite part of its public service. The appropriation is a small item compared to the returns it would yield. Knowledge with which to send out in advance, the warning "*fire weather ahead*" means ultimate savings of millions of feet of timber and better protection to public and private property. As a fire prevention measure, the appropriation should have nation-wide support.

Filibert Roth - An Appreciation

By G. H. COLLINGWOOD

ONE of the pioneers of American forestry has passed on. The man who tersely signed himself as "Roth," and whose students lovingly called him "Daddy" is no more. The news of the death of Filibert Roth on Friday, December 4, reached Washington barely in time to be included in this issue of AMERICAN FORESTS AND FOREST LIFE. As this magazine goes to press no word has been received as to the cause of his death, although it is known that on the fourth of last August he suffered a shock from which he did not wholly recover. His friends have realized for several months that his health was failing, and with this news they will mark the passing of a splendid man, a wise counsellor, and a true friend.

Filibert Roth was born in Wurtemberg, Germany, April 20, 1858, and in 1871 came to America, an immigrant boy with a tag on the lapel of his coat reading, "Send me to Ann Arbor, Michigan." He grew to manhood in Wisconsin and the far West, where he became American in thought and spirit. In 1890 he graduated from the University of Michigan with the degree of B. S. Filibert Roth was not without literary accomplishments, as evidenced by a long list of articles and books. Although Marquette University conferred upon him an honorary LL. D., few people ever referred to him as doctor. He took a stalwart pride in the appearance of his name in the University roster as,—"Filibert Roth, B. S." On

October 7, 1888, he married Clara Hoffman, of Merrill, Wisconsin. Mrs. Roth and a daughter survive him.

He worked with Dr. B. E. Fernow in the Bureau of Forestry from 1890 to 1898, when he went with Dr. Fernow and Prof. John C. Gifford to form the faculty of the New York State College of Forestry at Cornell. In 1901, after the College of Forestry at Cornell had dissolved for lack of financial support by the State legislature, he was made administrator of the National For-

est Reserves, and served in this capacity until 1903. Immediately following he went to the University of Michigan as organizer and head of their Department of Forestry.

Since then the name of Roth has been synonymous in the minds of many with forestry at Michigan and in Michigan. The work of the Department of Forestry revolved around this dynamic little man, whose personality radiated to all parts of the State—and beyond its borders. No student who ever sat under him will forget the enthusiasm with which he entered into his

teaching. His spirit was contagious. Each man was drawn into the discussion so that his thoughts ran close with those of his teacher leader. For years he gave freely of his strength that the people of Michigan might realize their forest heritage before it was entirely squandered. With the same generous spirit he devoted himself to the cause of his adopted country during the war. His influence among the German people of Ann Arbor and central Michigan was strong. This effort took heavily of his strength, and undoubtedly was an indirect cause of his death. For years his courage and optimism seemed dauntless in the face of odds which downed many other forest fighters. There were times, especially during recent years when he confessed his disappointment, but always he maintained the faith that the work which he had helped to foster



FILIBERT ROTH
1858—1925

would be accepted and developed by the State of Michigan. He took great pride that "his boys" are taking positions of leadership within the State.

But "his boys," and his interest in them were not limited to a single State, nor to all of these United States, for his influence and his friends extend to the furthestmost parts of the world. There are many who will grieve when they learn that "Daddy" Roth is gone, but they all will rejoice that they have known him.

"Questions and Answers"—A Senatorial Playlet

CHARACTERS:

Senator Ralph Cameron, of Arizona.
Fred H. Bixby, President American National Livestock
Association.

PLACE:

Salt Lake City, Utah.

TIME:

Meeting of Sub-Committee of the Senate Public Lands
Committee as reported in official hearings.

Senator Cameron: Mr. Bixby, how do you feel about the unappropriated land being turned back to the States?

Mr. Bixby: Well, I hate to oppose you, but I am opposed to you. I know what you think about it, and you are perfectly conscientious in that. I think it can not be turned back to the States.

Senator Cameron: Do you not think the States could administer it better than it is being administered now?

Mr. Bixby: I think if the States would try to handle the situation it would become more or less of a political machine, and the stockman would get the short end of the stick.

Senator Cameron: But you are handled right now by a bureaucratic government department, are you not?

Mr. Bixby: Well, I am pretty well satisfied with the handling that I have by the Federal Government, sir.

Senator Cameron: I said the department.

Mr. Bixby: Or the department; yes.

Senator Cameron: That is a political machine, is it not?

Mr. Bixby: I would say to a certain extent it is. I still think that it is out of the question to think that the government is going to turn back their unappropriated public area to the States. If I was the government I would not do it. I still think that the government would have that idea—whoever the government is. I still think that it would be most inadvisable to give this unappropriated area to the States. I am sorry to take the opposite stand from you, Senator.

Harbored Foes of the Forest

(Continued from Page 15)

chipmunks, gophers, and the shy rats and mice of forest and cut-over land, plant tree seed of one kind or another.

On the whole, however, the rat family does more harm than good in the forest. Just how many tree seeds a full-grown squirrel or field mouse will eat in a year, probably no one can say. We do know that certain kinds of rodents gather and store up immense quantities of tree fruit. As many as forty bushels of western white pine cones have been found stored in a single spot, presumably by one squirrel. In hollow stumps, between down logs, in brush piles, or in a little pit in the ground the cones are carefully hoarded up against the needs of the coming winter. Since the squirrels know their business only too well, and select, while still green and on the tree, cones which are plump and most full of seed, the removal of these cones from the tree greatly reduces the seed crop in all localities where squirrels are numerous. Under some circumstances the ravages of the squirrels may cause the failure of a heavy seed crop to produce more than a tithe of the seedlings that would otherwise be expected to spring from it. If such a seed crop occurs not yearly, but only at long intervals, its destruction in this way may be a very serious menace to the continuance of the forest.

When one considers the mischief done by hungry rodents, he will take a more charitable view of the

foresters' occasional raids on the squirrels' granaries. For in the work of artificially replacing the forest on thousands of acres of burned land in the West, the foresters have found that they are practically forced to rob some of the squirrel hoards in nearby timber. As I have said, the squirrels gather the very best of the crop, and it is just this seed we need in the almost herculean task of replanting the great fire-desolated areas.

A hue and cry has been raised more than once by soft-hearted people against the robbing of squirrel hoards, and against the practice, very necessary at times, of deliberately poisoning the rodents on certain areas of devastated land which are to be sown to forest tree seed. The foresters do not rob or kill any creature of the wild needlessly or without regret. It is only when the furry folk prevent us from perpetuating or re-establishing the forest, which will later be the home of a new animal population, that we must rob or kill. When fires have desolated the land, or when man has ravaged the forest beyond all possibility of natural re-growth, it is the foresters' task to restore the trees by artificial means. Better far that a few squirrels, gophers, and mice should go on half rations or die of poisoned bait today, than that thousands of acres should lie waste for decades and centuries!

Comment on the Wilderness Plan

Photographs by H. P. Weydemeyer

THAT the preservation of wilderness areas has a strong popular appeal can not be questioned. Mr. Aldo Leopold made a splendid plea under the title "The Last Stand of the Wilderness" in the October issue of this magazine for the preservation of a few primitive forests, untouched by motor cars and tourist camps, where those who enjoy canoe or pack trips in truly wild country might find still available perhaps, land uncharted and unexplored.

The American Forestry Association, in order to get the reaction of the public on the question, asked for expressions of opinion from the readers of the magazine. Enthusiastic replies, from the West Coast to the Atlantic Seaboard, leave no doubt that there is a strong sentiment in favor of the inclusion of the wilderness plan in a national outdoor recreation policy.

Mr. Leopold pointed out that wilderness areas supply a unique need in recreation—a need that can not be met in any other way. And wise foresight must prepare for it. All too soon the comparatively few available areas will be opened up and once destroyed, the wilderness is gone forever. It cannot be re-created. "Wilderness is the one kind of play-ground which mankind cannot build to order."

An earnest and convincing statement from Winton Weydemeyer, of Montana, purports to represent the opinions of thousands of people throughout that mountainous section. We quote:

"Those roamers of the wildernesses who have but gained in their love of pristine forests and awesome mountain ranges as outdoor travel has become so popular a pastime have just cause for jealously guarding their last fragments of wilderness from the unheeding motor car. During the past few years they have seen forest after forest vanish before the relentless march of timber mining. They have seen mountain lakes degraded to irrigation reservoirs, and creeks dammed for waterpower production. They have seen vast areas of swamp land reduced to waste or half-utilized farm land.

They have seen bird after bird and animals unnumbered retreat to sheltering areas before the wanton onslaught of selfish 'sportsmen,' finally to perish almost entirely or to hide in slaughter-ridden bands among the few far peaks that still offer a modicum of protection. They have seen motor highways the nation over pierce the last wild moun-



THE RIGHT KIND OF A WILDERNESS ROAD

The True Wilderness Lover, Who Travels Afoot or with Mountain-bred Pack or Saddle Horse, Pleads Not for the Construction of Roads and Multitudinous Trails, but for Their Exclusion. This Photograph Shows a "Trail" in the Blackfoot National Forest in Western Montana

tain ranges and beckon noisy and destructive auto-loads of campers into woodland and canyon—boasting of the power to conquer the wild. Now at last, in meritorious self-defense and defense of the native inhabitants of the mountains, they wish to reserve from a similar destruction a few scattered remnants of a magnificent heritage. What unselfish man or true sportsman can condemn them?

"The psychic nature of the motor tourist or camper is to take all and want more. His objective is the end of the road, and he deplores the quickness of gaining it. He will drive fifty miles to the end of a mountain road to fish in a troutless stream, leaving behind him real sport with rod and line. To the auto camper, distance lends enchantment; to the true wilderness lover, wildness exerts the mystic influence. If roads were constructed to the beauty spots in all the remaining unbroken forests and far mountains of the nation, probably ninety-five per cent of the motor campers would be no better served and satisfied than they are at present, but one hundred per cent of the wilderness lovers would be deprived of their pleasure in outdoor life."

Commenting on the desirability of opening up the wilderness forest to lumbering, Mr. Weydemeyer says:



CEDAR LAKE, KOOTENAI NATIONAL FOREST, MONTANA

From Dome Mountain, Beside the Lake, One Can View the Canadian Rockies, the Continental Divide in Glacier Park, the Mission Range in Central Western Montana, and the Higher Peaks in Northern Idaho and Western Washington

"It may be that limited timber cutting can be done on much of the wild country without destroying its wilderness value. Truly this is desirable and will become almost imperative within twenty or twenty-five years, unless we eliminate much of the blindness in present lumbering methods and forest control. But when a wilderness area is pierced with logging-roads and hacked and slashed with ax and saw, its life-blood, the Spirit of Wilderness, flows quickly away. Lasting wilderness conservation demands protection from commercial timber cutting.

"How is this protection to be gained? Not by merely agreeing at the present time that lumbering will be excluded, but by more efficient and complete timber conservation on all forests elsewhere in the nation, from the present time onward."

Mr. Weydemeyer closes by strongly urging the consideration of an unopened area in the Blackfeet National Forest in Montana as eminently adapted for wilderness recreation grounds:

"This is the Whitefish Range, which, with its outlying ridges, lies adjacent to the Canadian boundary and the west boundary of Glacier National Park, with a central roadless area of approximately 485,000 acres—half as great as the area of the park itself.

"Topographically the country in this area is much the same as that in the lower elevations of the park, and the fauna and flora are similar.

"White-tailed and mule deer are probably more abundant here than in any other area of similar size in the state. Black bear and grizzlies are numerous; moose, elk, and Rocky Mountain sheep occur in favoring localities. Fur-bearing and small game animals occur in great numbers. Three species of grouse and many kinds of water and shore birds breed within the area. Fishing of the finest sort may be had in the lakes and streams throughout the Range; trout weighing from twenty to thirty pounds, though not representing the average size, are sometimes caught. . . . In its claim to the interest of the naturalist, whether tyro or professional, this region rivals Glacier Park.

"Many sections have never been visited by anyone other than a few old-time hunters and trappers, and members of a United States Geological Survey party.

Trails are unusually few and distant, probably because of the surprising lack of forest fires in past years. Though it thus admirably conforms to the requirements demanded by a Western wilderness lover, it is by no means inaccessible to the ordinary camper or tourist who is willing to pay the just price of entry—a few hours' travel from automobile roads by foot or on horseback—as both the Roosevelt Highway and the Scenic International Parks Highway margin its southwestern side, and the Park-to-Park Highway meets the Roosevelt Highway a few hours' drive to the westward."

The president of The Western Rangers, Mr. Harry C. James, writes from Los Angeles:

"Our organization is composed of Western boys, interested in camping, hiking and outdoor lore, and we have long advocated the policy of wilderness reservations. . . . To get the most

out of outdoor recreation we must revert to primitive methods of transportation and the day is soon to come when our outdoor lovers are going to prefer the pack train to the automobile and the sail boat to the speed boat. In some of our National Forests, if the present rate of development keeps on, it will be impossible for the real lover of the outdoors to find a place to sit down which will be free from dust and the fumes of the motor car. Let's move now before it is too late."

A report of activity already under way in favor of wilderness reservations and unequivocal approval of their inclusion in the National plan comes from Dr. Walter P. Taylor, of the Tucson Natural History Society, Arizona. Dr. Taylor says, in part:

"Mr. Leopold's argument seems to us timely and absolutely sound. Foresight and careful planning are urgently needed if we are really to save some areas of unspoiled nature. In addition to the numerous other arguments for the 'wilderness' idea is that of scientific value, although not mentioned by Mr. Leopold. Areas which remain in their original condition, whether on desert, mountain, plain or elsewhere, are all too few. Most lands, even in the West, are excessively modified by grazing, fire or other factors. The 'wilderness' idea as proposed by Mr. Leopold would provide for certain uses, as hunting, in some cases timber cutting, and presumably in others, grazing. . . .

"It seems to us that the ideal system should contemplate not only our present national forests, national parks, and national monuments, but wilderness areas as proposed by Mr. Leopold if possible in all or nearly all national forests, and in addition, selected 'natural areas' for the preservation of typical examples of original conditions in all the principal forest and forage types."

From Kansas, Mr. C. C. Groendycke, Cashier of the First State Bank, at Lake City, writes:

"I want to register myself as being heartily in favor of the establishment of some wilderness areas where hunting, fishing and outdoor recreation can be enjoyed off the beaten track of civilization. I believe that the head-

waters of the Gila River in New Mexico would be a splendid place for one, as well as the Jackson Hole country and others mentioned, and I hope that it will be possible to have these set aside together with others that may be thought of later."

The lure of the inaccessible,—one of the chief charms of wilderness areas—is stressed by Mr. C. H. Russell, of Illinois, when he says:

"Making a place easy to get to does not increase the appreciation of those who arrive—rather it breeds thoughtlessness and contempt. Appreciation can only follow effort and achievement."

And again, from Massachusetts, Mr. Lewis H. Clark, says most convincingly:

"Having camped and motored some thirty thousand miles,—



ROOSEVELT HIGHWAY, LINCOLN COUNTY, MONTANA

From This Road, a Few Hours' Hike Into the Kootenai National Forest Will Take the Motorist to Glaciers, Treeless Peaks, Big Game Animals, and Unexplored Mountain Valleys. The Highway Runs for Fifty Miles Along the Whitefish Range, an Ideal Wilderness Area

from coast to coast in this country and also across Canada,—through ten National Parks in the States and three in the Dominion, I want to add my voice to the public demand for the preservation of the original state of wilderness in certain areas unsuited for agricultural or power development; to be kept uncivilized and free from cottages and roads.

"In visiting some of the standard sights of our country, the keenest pleasure comes through personal 'discovery' of a few spots not already made commonplace by the superlative style of advertising. As one who has tasted motoring and, like Oliver 'wants more,' I believe that there should be some places held sacred from the taint of gasoline."

The preservation of the wilderness will be, in the opinion of Mr. Gillet Mitchell, of New Jersey, one of the greatest strokes possible in the preservation of "old America." He goes on to say:

"The steady march of civilization is slowly obliterating all our scenic beauty. If we are to act to preserve for all time our gorgeous ranges of mountains and long reaches of virgin forests, we must act now. We must see that our future generations are provided for, that our posterity shall not come into a heritage barren of wilderness. . . . It would be a lasting memorial to Roosevelt if we could make such a reservation out of his old hunting grounds, the Boreas Range of mountains that lie back of Mt. Hoffman in New York State. This is probably the most beautiful and wild part of the Adirondack Mountains. . . . Let us save the wilderness that is left of 'Old America,' that our sons may know the thrill of a quick, clean shot, or an accurate cast that nets a speckled beauty."

From Delaware, the Rose family—G. B., R. E. and R. T., send a cordial combined endorsement, asking to be numbered among the friends of the wilderness reservation plan. And Mr. Carroll Creswell, of Maryland, writes:

"It is a project worthy of the support of every American."

That the concrete demand is being felt and recognized by the men actually engaged in outdoor activities of a national character is indicated by what Philip R. Hough, Field Secretary of the Joint Committee on Recreational Survey of Federal Lands, writes. We quote from Mr. Hough's letter, in part:

"In the work of this survey, that of classifying and compiling the areas of Government land suitable for outdoor recreation, I have had one point continually illustrated, that being the enormous number of kinds of outdoor recreation. . . . all the way from strenuous sports. . . . down to just plain resting and it is clearly demonstrated that 'what is one man's meat is another man's poison,' for what means recreation to some is an utter bore to others.

"I have found a clear demand for wilderness areas as places of outdoor recreation."

Scores of other letters endorsing the wilderness idea are on our desk. We would like to pass their contents on to our readers but space does not permit.

January Colors In The Corn Belt

By JOHN F. PRESTON

I RODE on a Pullman car all day across Ohio and a part of Indiana. Night drew down the curtain over Illinois and Missouri but the next day showed the farm country of Kansas.

All the summer verdure was gone,—the green of the foliage and the brighter hues of autumn. The earth showed only the dull monotony of gray and yellow and brown,—of old fields and pastures, of cornstalks and wheat straw and of trees and brush in their bleak nakedness.

The structures built by man stood out in striking contrast to the color scheme of the surrounding landscape. On the farms, dwellings mostly painted white alongside of big red barns and smaller outbuildings painted red or not at all. Silos and straw stacks and feed lots often the most prominent parts of the scenery; but always the red barns more prominent than the dwellings. Why should not the farm buildings be made to harmonize with their surroundings in colors of gray or brown or green, instead of standing out as inharmonious members of the community?

I said gray and brown and *green*. Green is the prevailing color of the spring and summer and in the coniferous trees this color is maintained throughout the winter. Why so few evergreen trees in this region, to

add brightness and richness and variety to an otherwise drab world? Have the farmers never been told how to use the coniferous trees to make the barns and the feed lots and the chicken houses retire to the background rather than occupy the center of the canvass? Doubtless our agricultural agents are busy preaching the gospel of harmony but let it touch the landscape and let the trick of putting ugliness to rout be explained and demonstrated.

I saw a few evergreen trees growing in the farmers' front yards partly screening the house and leaving the red barn to full unobstructed view. Red barns exude a certain atmosphere of prosperity but neither the farmer's barn nor his dwelling are usually noteworthy for their architectural design. If any portion of the farm buildings should be emphasized, surely it is the dwellings and not the barns and the feed lots.

Are the farmers and the townspeople of our corn belt so wholly utilitarian that they cannot appreciate the value of harmony in landscapes? Are they not willing to paint and plant differently to give a pleasing effect? I believe the farmers will give the matter attention if they are shown how. Here is an opportunity for our agricultural county agents, our state foresters and our agricultural journals. Perhaps foresters should lead.

National Progress in Forestry

IN his annual report, released for publication under date of December 16, Chief Forester William B. Greeley, gives an interesting and optimistic review of the national progress of forestry in the United States. The most significant change in our forest situation in recent years, he says, is the degree to which timber growing has become a matter of general interest and understanding, and the use of the soil actually applied by private agencies. Continuing, he declares:

"Forestry is at last making real headway in the United States in the shape of a gradual evolution in industrial practice and land management. To this evolution public leadership, current public opinion, and economic forces are now all contributing. National progress in forestry will from now on be measured, most of all, by the rate at which timber growing becomes part of every-day land usage. Of this outward spread of forestry there is marked evidence in current trends.

The Spread of Public Interest

The degree and breadth of public interest in forestry is unquestionably greater now than ever before in the history of the country. And this interest is shown along constructive lines. Acceptance of the fact that forestry is unquestionably an urgent public need has become virtually universal. There is better appreciation than at any former time of what forestry actually is—use and timber cropping; not abstention from use and tree worship. And there is not merely a receptive readiness to learn more but also an eager desire for information on possibilities and practices."

The Chief Forester lays special emphasis upon the changing attitude of forest industries, and the possibility of growing successful crops of timber on private land as a business undertaking. This interest, he points out, is not confined to any one region of the United States, nor to any one group of industries, as evidenced by the forest management activities of industrial concerns in the South, East and the Pacific Coast. This interest he attributes to an appreciation of economic changes that follow the depletion of virgin timber and the steady westward movement of the center of lumber production. The Forester reviews briefly the growth of municipal forests in the United States and the progress of state forestry activities. Of particular interest is his view of the steps which should be taken to advance forestry during the next decade. Under this subject he says:

The Work Ahead

"It seems probable that the general course of our progress in

forestry for the next 5 or 10 years has been charted. Very much remains to be done, however, to get forestry into actual land usage and to speed up the growing of timber to the rate needed to offset our national consumption of wood. The most urgent steps called for to meet the responsibility and assume the share of the Nation in that program are:

(1) Appropriations under the Clarke-McNary law sufficient to make it fully effective; that is, to set in motion the greatest possible State and local effort for forest protection, forest planting, and timber-growing on farms.

(2) A settled fiscal policy for the purchase of national forests under the Weeks and Clarke-McNary Acts. Without this the extension of the national forests in the Eastern States in accordance with the policies approved by Congress can not be efficiently planned or economically conducted.

(3) Provision for planting the 2,000,000 acres of denuded lands in the national forests at a much more rapid rate than the present snail's pace of 10,000 to 12,000 acres annually. The government should set a better example of forest restoration on its own property.

National progress in forestry depends to at least an equal degree upon State and local undertakings and upon private initiative. The largest opportunities in these fields are:

(1) Commercial timber-growing, the possibilities of which merit the careful study of lumbermen, paper manufacturers, and others concerned with timber products or timber-producing land.

(2) Extension of municipal forests and community tree planting.

(3) Development of State programs covering forest protection, State forest ownership, equitable adjustment of forest taxes, aid in timber planting, surveys of local land conditions to determine where timber-growing is needed, and educational work among landowners.

(4) Organized educational effort in support of the specific things to be carried through in each locality. Public education is the only effective means in the long run of changing the national attitude toward forest fires and furthering forest protection through well-drawn and well-enforced laws."

The Forester's report covers fifty-one printed pages, and, as stated in the foreword, "renders an account of stewardship." It is a clear and complete statement of the work of the Forest Service during the fiscal year ending June 30, 1925—a report that tells the public not only what has been done, but points out the course of progress for future work. It deals not only with the National Forests, but reviews the activities of the department in cooperating with the states in advancing reforestation, fire protection, forest taxation and general forestry.

Where Six-shooters are Checked at the Door

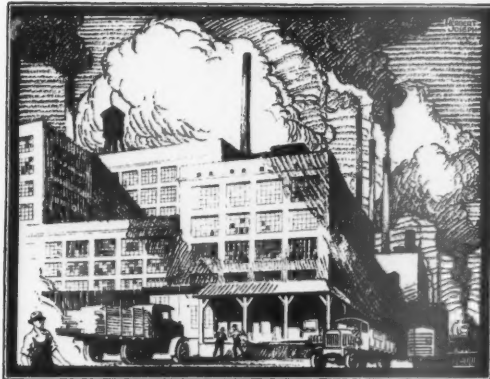
WHEN representatives of western sheepmen and western cattlemen gathered in a room recently in Salt Lake and agreed to go jointly before the Senate Public Lands Committee to present common demands for grazing rights, history was made. Mr. Fred H. Bixby, of California, who represented the cattlemen's case to the Senate Committee, said as much when he closed his presentation in these words:

"Now are there any questions? I appreciate the fact that we are not giving this committee very much to

work on. I am sorry that we can not give you any more.

But when you consider that this is about the only time in the history of the United States when cattlemen and sheepmen got together, and did not try to shoot each other in the foot, you want to be thankful to have gotten even this much."

Press reports do not say that six-shooters were checked at the door, but adequate precautions must have been taken, for no casualties were reported.



How one of the Lumber Companies got to know so much about the Factory Owner and his Lumber Problems

THREE or four years ago, a district lumber salesman happened to see a crate being made in the shipping room of one of his customers.

What he saw hurt his sense of lumber values.

Too many boards, too much weight. Not enough strength, nor enough protection for the merchandise.

It set him to thinking—and from that thought has grown the Weyerhaeuser Specialist Service that is one of the era marks in the use of lumber in American industry.

Up to that time, no lumber concern had ever had much more than a general idea as to *how* lumber was selected and used in the thousands of specialized industrial uses.

The natural assumption was that the Factory Owner or his Purchasing Agent bought the right kind of lumber for the job they had in mind, and used it to best advantage.

THIS may sound like indifference on the part of the lumberman.

What it really means is that a lumber concern like Weyerhaeuser has a husky job of its own. A job that had absorbed all its energy heretofore.

It requires great timber resources and lum-

ber manufacturing plants to feed into American industry the lumber it requires.

But from this point out Weyerhaeuser set itself to study *lumber users* and *lumber uses*.

This led them deep into many a specialized problem that the Factory Purchasing Agent and his employer had been struggling with patiently—but could not solve completely without the knowledge that only an expert lumberman could give them.

IT IS the function of the Weyerhaeuser Specialist Service to contribute this expert lumber knowledge to the industrial men of this country.

It is always a *specialist* contribution. A definite solution for the personal problems and needs of the *individual lumber user*.

Weyerhaeuser experts go almost everywhere. Not to sell a man something so much as to *tell* him what he wants to know about lumber in relation to his individual use of lumber.

There never was such a lumber service conceived and carried through before.

A *specialist* service.

With material resources almost without limit.

With human vision and intelligence focused on the lumber needs of American industry today.

It is the new deal.

WEYERHAEUSER FOREST PRODUCTS SAINT PAUL • MINNESOTA



Producers for industry of pattern and flask lumber, factory grades for remanufacturing, lumber for boxing and crating, structural timbers for industrial building. And each of these items in the species and type of wood best suited for the purpose.

Also producers of Idaho Red Cedar poles for telephone and electric transmission lines.

Weyerhaeuser Forest Products are distributed through the established trade channels by the Weyerhaeuser Sales Company, Spokane, Washington, with branch offices at 208 So. La Salle St., Chicago; 220 Broadway, New York; Lexington Bldg., Baltimore; and 806 Plymouth Bldg., Minneapolis; and with representatives throughout the country.



AROUND THE STATES



With The American Forestry Association

Bill for National Arboretum Introduced

Three hundred thousand dollars would be authorized to enable the Secretary of Agriculture to acquire land along the Anacostia River, near Washington, D. C., for a national arboretum in a bill introduced in Congress December 15 by Senator Pepper, of Pennsylvania. For administering the new arboretum an advisory board would be provided made up of representatives of fourteen interested national organizations, among which is included The American Forestry Association.

Wood Utilization Committee Appoints Oxholm Director

The National Committee on Wood Utilization formed at Washington in December, 1924, has appointed as Director of its activities, Axel H. Oxholm, Chief of the Lumber Division of the Department of Commerce. It is understood that Mr. Oxholm will establish his office at the Department of Commerce in Washington and he is now busy organizing a staff and conferring with the committee and various manufacturers upon the waste prevention projects first to be undertaken. Mr. Oxholm has long been identified with cooperative projects between the Federal Government and the wood-using industries of the

country and spent a number of years in Europe, investigating the foreign lumber trade situation for the Department of Commerce.

"STAND BY"

The battle to save the National Forests from dismemberment at the hands of certain western grazing interests will be fought out in Congress this winter. All friends of conservation must be alert and ready for action. The proposals of the stockmen strike not only at the National Forests but at Game Refuges, National Parks, Outdoor Recreation and Stream Protection.

As this issue of AMERICAN FORESTS AND FOREST LIFE goes to press, information comes to us that the grazing barons of the west are shaping up their legislation for introduction in Congress. Your representatives in the Senate and the House will want to know where you stand. Write them NOW registering your opposition to any legislation that will break down the National Forests and then stand by for further action as legislative developments may demand. We will keep you in touch with the situation. Write us for any special information you may desire.

American Forest Week—1926

The American Forest Week committee, now definitely organized on a permanent basis and planning wide observance of American Forest Week during the coming

spring, has set the week of April 18 as the tentative date for American Forest Week in 1926. This date is of course subject to the approval of President Coolidge who will be asked to issue the customary Presidential proclamation, following his custom and that of the late President Harding. This will be the fifth annual observance of a special week set aside to concentrate public attention on the importance of America's forests.

Work is progressing in the compilation of literature for use in observance of American Forest Week and it is understood that the plan followed last year which encouraged the formation of state committees will be used. Last year much was accomplished in keeping local forestry problems at the front throughout the country.

The directing committee for 1926 includes: Mrs. John Dickinson Sherman, General Federation of Women's Clubs; Elbert H. Baker, American Newspaper Publishers Association; Wm. B. Greeley, Chief of the United

States Forest Service; Wilson Compton, National Lumber Manufacturers Association; R. S. Kellogg, Associated Advertising Clubs of the World, and National Forestry Program Committee; E. T. Allen, Western

Forestry and Conservation Association; A. J. Hager, Friends of the Forest; Arthur C. Ringland, National Conference on Outdoor Recreation; Ovid M. Butler, The American Forestry Association; and R. Y. Stuart, Association of State Foresters.

Mulford Honored by California Foresters

Students and alumni of the University of California have created a loan fund to be named for Professor Walter Mulford, head of the Division of Forestry, who will begin a year's leave of absence for research and study in Europe, on January 1.

The purpose of the fund is to help worthy forestry students who must attend summer camp for experience in active forestry field work of broad character. Many of the students find the expenses of summer camp a great strain on their finances since the time is needed for earning money to carry them through the school year.

The fund has been raised by contributions from the alumni, faculty and pledges from the out-going senior class.

World Survey of Forest Research

Recognizing that the development of a sound forestry policy must be based upon exhaustive researches in the fundamentals of science underlying forestry, the National Academy of Sciences will shortly undertake a survey of science and education in the field of forestry in Europe and America.

For the prosecution of the work the Academy has received an allotment of \$50,000 from the General Educational Board, and at a meeting on December 14 of the committee selected to direct the work, it was decided that the survey will be conducted directly by Colonel Henry S. Graves, Dean of the School of Forestry of Yale University and former Chief Forester of the United States; I. W. Bailey, Associate Professor of Forestry at Harvard University, and H. A. Spoehr, Assistant Director of the Laboratory for Plant Physiology at Carmel, California. The survey will include the facilities at present available for research in the fields of science basic to forestry, including physics, geology and chemistry as well as the biological subjects.

Second Meeting of National Conference on Outdoor Recreation

A call has been issued by Chauncey J. Hamlin, chairman of the executive committee on the National Conference on Outdoor Recreation, to meet with the President's committee in Washington on January 20 and 21. At this conference it

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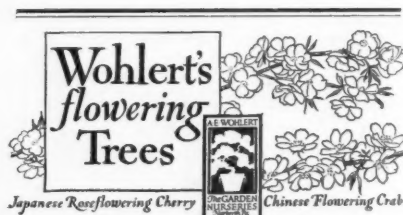
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is planned to have progress reports from the conference surveys and committees and to have placed before the body the conclusions so far reached on outdoor recreation and the conservation of wild life sources. Each of the member organizations is entitled to one vote and has been requested to send a number of delegates. Officers will be elected at this meeting for the ensuing year.

It will be very helpful if resolutions and projects which member organizations want considered are filed in advance with the Executive Secretary, National Conference on Outdoor Recreation, 2034 Navy Building, Washington, D. C. These should be submitted not later than January 6.

Progress on the Upper Mississippi Wild Life Refuge

Actual work in the establishment of the Upper Mississippi Wild Life and Fish Refuge is full of interest, according to word from Superintendent William T. Cox who writes from Winona, Minnesota, as follows:

"As you know, we are engaged in a big round-up out here—trying to corral all of the bottom lands between Lake Pepin and Rock Island. It's some job! The price, an average of not exceeding \$5.00 per acre, is so low that it is only after an owner is convinced of the merit of the project that he is willing to let go.

"With the completion of purchases (and this work is being pushed vigorously), there will be a difficult task of protection to work out and then a fascinating and promising line of development to undertake. . . .

"It combines forestry and wild life in

one project to be handled as a unit. This is as it should be since it makes possible quick adjustments in management as the game or the fur or the forest, or even as the tourist may require.

"The principle worked out at Itasca Park of trapping the surplus male beavers only and not disturbing the females, makes possible the semi-domestication of this valuable animal. I am arranging to stock this Refuge or parts of it with beaver the coming spring, and if enough protection can be given them, there should be large numbers of beaver here in the future. Suitable food is abundant and surrounding conditions favorable to the re-introduction of this animal, which as a matter of fact was plentiful here years ago and was trapped out of these bottom lands by men some of whom are still living.

"Deer, wild turkey and other game, long since killed off along the river, can be re-introduced successfully, I believe.

"We are going to have an interesting and, I believe, profitable hardwood forest extending for three hundred miles through a thickly settled country. This forest will offer exceptional opportunities for the raising of black walnut and other valuable trees. Much of the woodland here is comparable to the French and English coppice forests. . . .

"To the wild fowl of the Mississippi Valley, this Refuge must look like the 'Promised Land.' Just think if we were a couple of old mallard drakes with green heads and curled up tail feathers flying from Canada to the Gulf, hundreds of miles at a stretch with never a glance downward except into the muzzle of a shotgun! Little chance has there been for rest or food for the wild fowl on this whole hard trip. But now with the Refuge extending far down the 'Father of Waters,' plenty of food will be provided to compete with the duck club properties.

Rest will be possible not merely for two or three days but as long as necessary for the wild fowl and shore and song birds on their long pilgrimages from their summer homes in the North to and from the sunny Southland."

Slash Disposal in Minnesota

Under a new section of the slash disposal law in Minnesota all brush and slash resulting from land clearing, timber cutting or other woods activities must be piled in separate compact piles while the cutting is going on, in case it occurs within 200 feet of any highway, railroad, right of way, lake shore or adjoining timber. Commissioner of Forests, G. M. Conzet has been urging the disposal of slash previous to the heavy winter snows and before the treacherous spring wind and drouth come on.

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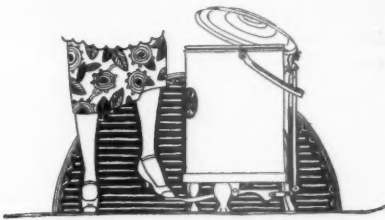
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New York State Wood Utilization Committee Appointed

As a result of an interesting meeting of wood using organizations and industries at the State College of Forestry, Syracuse, New York, on November 12, a permanent committee has been appointed to carry on the work planned.

George W. Sisson, Jr., of the Raquette River Paper Company, Potsdam, New York, who is also a director of The American Forestry Association, heads the committee. Working with him are: W. F. Bancker, American Forest Products Corporation, 292 Madison Avenue, New York City; H. B. Coho, New York Lumber Trade Association; Paul S. Collier, Northeastern Retail Lumber Dealer's Association, Rochester, New York; M. B. Rappleye, Builders' Exchange, Rochester, New York; Horace F. Taylor, Taylor & Crate, Buffalo, New York; Walter Buehler, The Barrett Company, 40 Reclor Street, New York City; G. R. Blount, The Blount Lumber Company, Lacona, New York; S. J. Lowell, Master, New York State Grange, Fredonia, New York; Nelson C. Brown, New York State College of Forestry, Syracuse, New York; A. B. Recknagel, Secretary, Empire State Forest Products Association, Albany, N. Y.

This Conference, which was sponsored by the Empire State Forest Products Association and the New York State College of Forestry, was one of the most spirited and constructive gatherings of 1925. Addresses of special significance were given by Aldo Leopold, Assistant Director of the Forest Products Laboratory at Madison; W. A. Babbitt, Secretary of the National Association of Wood Turners, Dean Franklin Moon of the Syracuse Department of Forestry, and Axel Oxholm of the United States Department of Commerce, who represented Secretary Herbert Hoover. A banquet was held in the evening at the Hotel Syracuse at which addresses were made by former Congressman John D. Clarke, joint author of the Clarke-McNary law, Arthur Newton Pack of the American Nature Association, Julian Rothery, Forester of the International Paper Company, and Shirley W. Allen, Forester, The American Forestry Association.

It was pointed out by many of the speakers that New York State, a leader in consuming forest products, had within her borders the possibilities of warding off an immediate timber shortage by better manufacturing practice, more intelligent utilization of small, scattered supplies of mature timber and by working toward standard architectural and dimension stock specifications.

In connection with the conference the annual meeting of the Empire State Forest Products Association was held.



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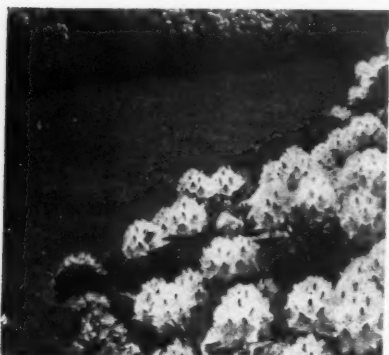


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Chambers of Commerce Push Vermont Town Forests

The Vermont Forestry Association has been cooperating with the State Chamber of Commerce in a series of "Better Acquaintance" meetings throughout the State, meetings being held in seven towns of Bennington and Rutland Counties during the past week.

Reginald T. Titus, Executive Secretary of the Forestry Association, was one of the speakers at all meetings, demonstrating the connection between Chamber of Commerce work and the various forestry activities. Mr. Titus devoted most of his time to a discussion of Municipal Forests and showed how Chambers of Commerce, Boards of Trade and other business groups could better their communities by sponsoring the establishment of town-owned forests in their respective localities.

The Vermont Forestry Association has promised to aid more Vermont towns to follow the example of the twenty-four now having forest tracts and will provide expert supervision of planting operations and consultation service.

California Seeks Adequate Fire Protection

One million dollars will be available for making the important water-shed forests of California "fireproof" if a bill introduced in Congress recently by Senator Hiram Johnson and Representative Walter F. Lineberger becomes a law. While this bill would at first seem to be an expenditure for strictly local benefit it is unique in its request for \$1,000,000 from the Federal Government to be matched by a similar amount from cooperators which will be spent entirely on government land.

Ranch and municipal interests in the neighborhood of the Angeles, Cleveland, San Bernardino and Santa Barbara National Forests are dependent on the water from the mountains within these forests and are hindered in their efforts to store

flood water through the fact that inadequate fire protection causes the lower reaches of the canyons to be flooded with ashes and mud. The California people point out that their request has a national significance on account of the part which California plays in the nation's food production and because of tremendous eastern investments within the State.

National Forests Called Good Tax Payers

In a recent talk before the Safford, Arizona, Rotary Club, Congressman Carl Hayden remarked that "the National Forests are the zest paying taxpayers the State has." He then explained that the percentage of the gross revenue of the forests which is each year turned over to the state and counties is much greater than the percentage of the income of individuals and corporations operating in the state.

A New Bear Story

By ALICE G. WHITMAN

During a forest fire in northern Ontario a ranger came upon a baby bear with severely burnt feet and body. The youngster was whimpering pitifully, so the forester put it into his automobile truck and made it fast with a rope. But when he started on his way he discovered that the mother had appeared and was following in pursuit. Moreover, since the road ran uphill, she was gaining. The ranger was resourceful and decided to throw the cub overboard, but in his hurry he could not untie the knots. He glanced back. The mother bear was only a few yards behind. He looked to the right and left for a means of escape, and just then, as the car reached the top of the hill, with a mighty effort, the mother bear threw herself upon the back of the car. At that moment the forester jumped over the side. He regained his feet in time to see the truck continuing on its journey, with mother bear and her baby reunited. Later he found the car at the side of the road. Everything was intact except the side of the seat to which the cub had been tied. The old bear had torn it out to release her baby.

Broken Branches

Damage to trees by ice storms has been investigated by Prof. Walter E. Rogers, of Lawrence College, Wisconsin. He checked up on a number of trees of different species of well-known kinds and found that a species of Catalpa leads all the rest in resisting the efforts of the ice. A variety of spruce came second, with a pine third. The sturdy oaks lived up to their reputation for strength. Elms and poplars were among the trees most damaged by the accumulating ice.

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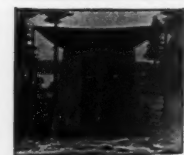
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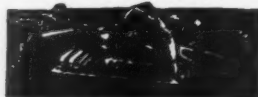
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Mention AMERICAN FORESTS AND FOREST LIFE—It Helps

Courts Will Clear up Kaibab Deer Case

Plans are being made for instituting district federal court proceedings to restrain Arizona State officials from interfering with Forest Service employees in handling the Kaibab deer situation. Forest Service men, to the best of their ability, are endeavoring to carry out the orders of the Department of Agriculture, which read as follows: "To remove in such manner and under such conditions as the forster shall deem necessary such number of deer as shall be necessary for protection and preservation of United States property on the Kaibab reserve and to protect the forage of the region to such an extent that the deer may be preserved." This can not be done unless restrictions in the game laws of the State of Arizona are removed.

The contemplated proceedings will be made on the premise that the Federal Government owns the land in question and has sole jurisdiction over it, including power to control the game in any manner that is necessary. The State law on the other hand allows no one to kill deer except during the open season in October at which time each licensed hunter is allowed to take one buck. The Kaibab Game Preserve presents a problem without parallel in the United States. The situation has been thoroughly discussed in AMERICAN FORESTS AND FOREST LIFE during the past year.

Bounded on the east and north by an impassable desert, on the west by the Knab River, and on the south by the Colorado River, it is impossible for the deer to scatter to other regions. The herd has so increased that there is not sufficient forage to maintain it.

A committee of experts appointed by the Secretary of Agriculture reported on the area and recommended a heavy reduction of the herd through the granting of special hunting privileges and the trapping and shipping of deer for private game preserves and zoological gardens in an attempt to obviate the necessity of systematic killing.

During the past fall, the deer hunt on the Kaibab Game Preserve netted a total of 392 animals. Most of them were large, old bucks, whose removal from the herd

was most desirable. Three hundred and fifty of this number were removed by hunters, while forty-two were killed for scientific purposes or condemned on account of disease or poor quality.

Water Power or Recreation

The Federal Power Commission a short time ago denied an application for a preliminary power permit affecting Spirit Lake within the Columbia National Forest. This application was denied on one ground, among others, that the recreational value of the lake is such as to demand special consideration in determining the use to be made of the natural resources of that region. It was held that extensive investigations would have to be made in order to determine how much storage could be developed without impairing the recreational value of the lake. The conclusion was reached that the importance of the project did not justify at this time the expenditures necessary to secure the required data.

This decision is considered important because it shows that the Federal Power Commission is disposed to give consideration to representations respecting the recreational value of lands and particularly lakes within the National Forests which may be sought in connection with power development.

Satin Moth Quarantine Extended

The presence of the Satin moth in the State of Washington and its spread to the States of Maine and Rhode Island, and to new territory in New Hampshire and Massachusetts, has led the Secretary of Agriculture to extend the area held under Federal quarantine. Scouting work by the Federal Horticultural Board this year found the pest established in certain areas in Maine, Rhode Island, and Washington and in additional localities in the States previously quarantined on account of this pest.

This quarantine applies only to poplar and willow trees or parts thereof capable of propagation. On account of the extreme difficulty of detecting the inconspicuous webs in which the caterpillars hibernate, it is necessary to place an embargo against the movement of these trees from the quarantined areas.

Kraft Paper from Douglas Fir Waste

A step toward the conservation of forests has been taken in the use of waste wood from giant Douglas Fir trees, which heretofore has been considered a loss by the west fir unit of The Long-Bell Lumber Company, Longview, Washington. This waste now will be the basis for a new industry which will convert it into chips for the manufacture of kraft paper.

This was assured when a contract for

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furnishing from 100 to 125 cords of Douglas Fir waste by the Long-Bell Lumber Company was closed with the Crown-Willamette Paper Company, which will erect a chipping plant at Longview, next to the Long-Bell Lumber Company sawmill, the largest in the world.

The new plant will reduce all waste, from chips to the butts of the largest logs, to a size that may be conveyed by a blower pipe system to open barges in the Columbia River and taken to the paper company's mill at Camas, Washington, where it will be converted into pulp and then into kraft paper.

Conference of Southwestern States

Sponsored by the National Conference on State Parks, a Regional Conference on State Parks will be held in the Southwest early in January. Two meetings have been planned. One will be held at Texarkana for the eastern half of Texas and Oklahoma and the whole of Louisiana, Mississippi and Arkansas; the other at Amarillo for western Texas and Oklahoma and all of Colorado, New Mexico and Arizona. These Conferences are being organized by D. E. Colp, Chairman of the Texas State Park Board and State Committeeman for Texas of the National Conference.

Until the past year the Southwest had not realized the great possibilities of State parks. Only two of the States participating have such parks, although all now realize their great value to the community. The National Conference believes that such conventions will give great impetus to plans for the creation of State recreational areas and to the development of parks and forests already established. Texas now has fifty-one State parks, all created within the past year, and no more fitting place could be found for these conferences.

County-wide Tree Planting

In spite of dry weather during the past summer, splendid results are manifest from the county-wide tree planting demonstrations started in Iowa during the spring of 1924. This work is under the leadership of I. T. Bode, Extension Forester, with headquarters at Iowa State College, Ames. Two counties already have shelterbelt plantations under way and two more plan demonstration plantings in each township during the coming spring.

Twenty-seven counties now have some type of tree planting demonstration under way and among the 10,000 forest trees set out in this prairie country, the forest plantings have attained heights of from four to twenty feet, depending on species.

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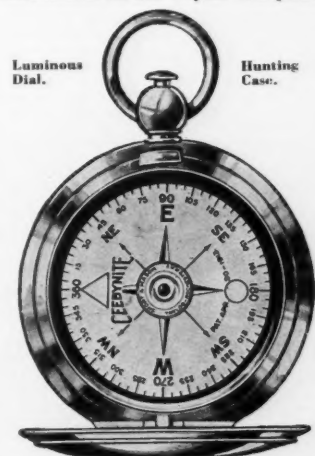
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MAN with forestry training and experience in forestry work (married), desires position as care taker on private estate. Available at once. Address Box 30, care of AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (12-1-3)

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Second New England Forestry Congress

One of the most important forestry meetings of the year was held at Springfield, December 10, 11, 12, when all of the New England conservation interests met in the Second New England Forestry Congress. A remarkable exhibit of New England forest products was assembled in Memorial Hall. Addresses by Dr. C. A. Schenck of Darmstadt, Germany; Charles Lathrop Pack, President of the American Tree Association; and George D. Pratt, of The American Forestry Association were broadcast from Station WBZ at the opening session on the evening of December 10.

One of the most interesting addresses was given by Professor R. T. Fisher, Director of the Harvard Forest, on "The Marketing Problem for New England."

In addition to the three days' meeting of the Congress, a number of other conferences were held including the 11th Annual Blister Rust Conference. Meeting of the American Plant Pest Committee, the North Eastern Forest Research Council, the Massachusetts Forestry Association, and a joint meeting of the New England state forestry associations.

The Congress adopted resolutions urging the passage of the McNary-Woodruff Bill, recording its opposition to passing any grazing legislation which would in any way restrict the authority of the Forest Service or Secretary of Agriculture in the administration of grazing rights on the National Forest, congratulating Secretary of the Interior Hubert Work on saying that recreation should be subservient to higher purposes on the National Parks, and favored increases in Congress of the forestry askings over the amounts recommended by the Bureau of Budget.

Forest Research Council to Meet at Richmond, Virginia

With the call for a meeting of the Appalachian Forest Research Council, to be held January 5, at Richmond, Va., in connection with the joint meeting of the American Forestry Association and the Southern Forestry Congress, the stage has been set for what promises to be the largest and most important gathering of foresters ever held in the South, says W. D. Tyler, chairman of the forest research council and recently appointed president of the committee on forestry of the Virginia State Chamber of Commerce. Forestry investigations now being conducted through the Appalachian region by State agencies, the government forest experiment station at Asheville, N. C., and other agencies, will be considered by the Council.

The Appalachian Forest Research Council was appointed by the Secretary of Agriculture to "review the work of the various investigative agencies, criticize plans, recommend investigative policies and

projects, and generally to stimulate investigations in forestry leading to a better understanding of the essentials of timber growing in the Southern Appalachian region." As a connecting link between the investigative agencies and the public the Forest Research Council is made up of lumbermen, manufacturers in wood using industries, timberland owners, railroad and coal company representatives, State foresters, and others.

The Appalachian Forest Research Council held its first meeting at Asheville, N. C., February 12 and 13, 1925. The executive committee of the Council consists of Colonel Joseph Hyde Pratt, Biltmore, N. C., chairman; Andrew Gennett, Asheville, N. C.; J. S. Holmes, State Forester, Raleigh, N. C.; and Major George L. Wood, of the R. E. Wood Lumber Company, Baltimore, Md. W. D. Tyler, of the Clinchfield Coal Corporation, Dante, Va., president of the Council, and E. H. Frothingham, Director of the Appalachian Forest Experiment Station, who is secretary, are ex-officio members.

Minnesota Tree Society Is Formed

To assure adequate reforestation of the State, and protection of growing forests, the Minnesota Tree Society, an organization made up of citizens of the State, was recently organized at Minneapolis, Minnesota. The by-laws of the Society declare that it is absolutely non-political and shall not be used for the dissemination of partisan principles or for personal interest. Its membership is limited to those citizens who show an interest in reforestation and other phases of conservation.

The Society gives promise of being an active force in arousing the people of Minnesota to the need of reforestation and the better protection and handling of forest lands. The organization has already begun a state-wide campaign of educational publicity, in which one of the principal objects will be to bring about an amendment to the state constitution which will permit the State to adopt an equitable forest tax law for timberland owners. The Executive Vice-President of the Society is C. B. Winters, 756 Builders' Exchange, Minneapolis, Minnesota.

Antioch College Stages Christmas Tree Planting

Antioch College, of Yellow Springs, Ohio, through the Department of Lumber is cooperating with the Ohio Association of Retail Lumber Dealers and schools of Yellow Springs to have each child plant a tree which may be harvested as a Christmas tree. It is hoped through this annual ceremony to impress upon school children the value of beautifying waste land by the planting of trees.



BOOK REVIEWS



GLORIES OF THE CAROLINA COAST. By James Henry Rice, Jr. Published by the R. L. Bryan Company, Columbia, S. C. Price \$2.00.

In an interesting, colorful and inviting way, Mr. Rice presents to the readers of his book the wonders of the country he loves so well, and one readily admits that the Carolina Coast is a land of wonders, without end.

The beauty of this region, with its temperate climate, fertile soil, natural resources, fully stocked rivers and variety of wild life all go to make it a "veritable 'Garden of Eden,'" as Mr. Selby says in his foreword to the book. All these assets belong to the Carolinians, and yet South Carolina carries a liability,—an undeveloped coast. Mr. Rice deplors this condition and appeals to the people of his State to turn their efforts to the rehabilitation of this section.

A charming feature of the book is the use of local names for the various birds and animals as well as the common ones, and the names of the different places as pronounced in the vernacular of Carolinians. Mr. Rice knows his country and his people, and introduces them to the readers as no other writer could do. The book contains a number of illustrations typical of the region.

OECOLOGY OF PLANTS. By Eug. Warming, Ph. D. Published by the Oxford University Press, American Branch, New York. Price \$5.00.

This book has been written especially for the Oxford Press by Professor Warming, of the University of Copenhagen. It is based upon his Danish work entitled *Plantesamfund*, published first in 1895, and the pioneer in writings on the subject of Ecological Plant-geography.

It covers a field which appeals to the botanical morphologist, physiologist, and systematist, and brings them together on common ground. In a practical way it applies to agriculture, horticulture and forestry, and students of botany, teachers of nature study, everyone, in fact, who is interested in the ever-changing characteristics of the vegetable kingdom, will find in this volume valuable information and suggestions to guide them in their studies.

Great credit is due Professor Groom, of the Imperial College of Science and Technology, London, for his excellent work in interpreting the manuscript as it was received from Professor Warming, and preparing it for publication. It is, therefore, not an English edition of a foreign book,

but practically a new work. Credit is also due Doctor Martin Vahl, of the University of Copenhagen, for his work in classifying Formations, remodelling parts of the book, and his help in collecting the various literature on the subject of oecology. In the Bibliography, at the end of the book, are the titles of all important contributions which have been made to this subject.

KELSEY'S RURAL GUIDE. By David Stone Kelsey. The Atlantic Monthly Press, Boston, Massachusetts. Price \$1.50.

This is one of the best, most human and most practical handbooks on country life which has come to our attention. It is written not merely for the farmer and the granger, but for the suburbanite and for all people who enjoy outdoor life and have hopes of acquiring a rural home. In dealing with the subject, the author has employed "the gentle art of suggestion," avoiding, in so far as possible, direct instruction. Although not a large book, the subject is handled in sixty chapters, each of which is short, interestingly written, and to the point. One may turn to practically any chapter and read it with pleasure, profit, and inspiration. The very human treatment of farming and country life is reflected by such chapter titles as "Life More Abundant," "Back to Nature," "Liberty and a Living," "A Real Home," "Wild Life," "Wonders of Plant Life," "Forestry and Fuel," "Laughter of Life," "Country Schools and Churches." As Mr. Charles M. Gardner, Editor *National Grange Monthly*, who wrote the introduction, says, "There isn't much of theory here, but 'a heap of livin'."

Illuminated Fire Warning

According to the Forest Service, a firm in San Francisco has erected a large sign, brilliant with electric lights at night, and NOT setting forth the merits of chewing gum or pickles. It reads: "PREVENT FOREST FIRES—IT PAYS."

Texas City Starts Pecan Grove

Due to the interest and foresight of Finance Commissioner John C. Harris, of Dallas, Texas, a ten-acre municipal paper-shell pecan grove was established at the City Farm and dedicated to the children of Dallas. The City Forestry department had charge of locating and establishing the orchard, and as the future care of the grove is under this department, it will be possible to give it all the attention necessary at a very small expense.



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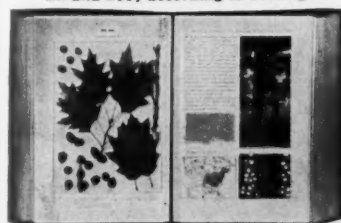


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STUMPAGE PRICES.—Lowest rates considered, \$3.50 per M for yellow pine and \$.50 per M for white fir, incense cedar, lodgepole pine (cutting optional) and for any material below the specifications for sawlogs to be cut and removed at the option of the purchaser.

DEPOSIT.—\$5,000 must be deposited with each bid to be applied on the purchase price, refunded, or retained in part as liquidated damages, according to conditions of sale.

MANUFACTURE.—The conditions of sale will require that this timber shall be manufactured at one mill of the band type located in Modoc County, Calif.

FINAL DATE FOR BIDS.—Sealed bids will be received by the District Forester, San Francisco, Calif., up to and including June 1, 1926.

The right to reject any and all bids is reserved.

Before bids are submitted, full information concerning the character of the timber, conditions of sale, deposits, and the submission of bids should be obtained from the District Forester, San Francisco, Calif., or the Forest Supervisor, Alturas, Calif.

Fire Prevention Experiment on Cape Cod

The Massachusetts Forestry Association, cooperating with the United States Forest Service, the Massachusetts Department of Conservation and the Forest wardens, organization and residents of Cape Cod counties will undertake a comprehensive experiment in fire prevention during the coming season. The object is to prove, if possible, just what is the effect of intensive public education in the prevention of forest fires in a definite area. The plan is to cover a period of three years and will feature lectures to schools and organizations, the organization of resident committees to work fire prevention plans and the organization of a general committee to coordinate effort. Posters and bulletins will also be used and tree-planting will be encouraged. All expenses are to be kept in connection with the experiment, as well as costs for extinguishing forest fires, and the value will finally be judged by comparing results and costs with those on an area upon which no special effort has been used.

National Forests Yield Five Million Dollars

Receipts from National Forest resources during the fiscal year ended June 30, 1925, totaled \$5,000,137, according to the final tabulation made by the United States Department of Agriculture.

This amount is \$251,766 less than the receipts for the previous fiscal year, but is 409,204 larger than the average annual receipts of the preceding five years.

Sales of timber and livestock grazing permits were responsible for most of the money received, \$2,940,393 having been paid for timber and \$1,725,377 for forage. Permits for the use of National Forest lands for summer homes and other forms of special use, including water power, brought in \$334,367.

Under authority of acts of Congress, twenty-eight states and Alaska received from National Forest resources, a total of more than one million dollars for the use of school and road funds of the counties in which National Forest land is situated.

Idaho Slash-Piling Law in Force

The slash-piling requirement on lumbering operations contained in a recently passed Idaho law is gaining force throughout the State. Many operators feel that the law is too drastic but others declare that it should have been started fifteen years ago. Prices for the piling of slash range from 25 cents to 75 cents per thousand feet of logs cut and the result is expected to greatly reduce fire hazard.



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State Forestry and Forest Taxation Laws

A brief digest of state forestry and forest taxation laws has been prepared for the information and guidance of the National Lumber Manufacturers Association by Mr. Harry G. Uhl, Assistant Secretary.

In recognition of forest land taxation as ordinarily applied in practice in many states as a deterrent to industrial reforestation and in the hope and belief that this obstacle may with patience and proper cooperation between federal, state and private agencies be materially reduced if not ultimately eliminated, this digest has been furnished to lumber associations and their forestry and taxation committees.

The bulletin of 45 typed pages contains:

Summary of Forestry Laws passed by State Legislatures 1925.

Summary State Forest Tax Laws passed 1925.

Summary State Forest Tax Bills that failed 1925.

Summary State Forest Tax Laws favorable to reforestation.

The digest shows that 26 of the 42 states which had legislative sessions in 1925 adopted 71 important forestry laws. These laws frequently deal with the fundamental problems of taxation and protection against fire. Including legislation prior to 1925, the report finds that 23 states have enacted tax laws favorable to reforestation, in the form of exemptions, bounties, rebates, yield taxes and limited valuations. Several of the acts date back more than 50 years.

New York Game Farms Successful

There are 222 game farms in operation in New York State under license from the Conservation Commission. Deer, pheasants, geese, ducks, quail and Hungarian partridge are among the species produced.

All game raised on these farms is killed and tagged for identification under rules and regulations prescribed by the Commission. A charge of 5 cents is made for each tag used. The price of a license to operate a farm is \$5.00 a year, and \$1,110 was realized from sale of these licenses in the fiscal year which ended June 30, 1925.

"Would-be" Sportsman Finds Hunting Expensive

A "would-be" sportsman in Douglas County, Oregon, recently pleaded guilty of burning over 100 acres of land to make "better hunting" and paid \$250 in fines. This and other hunter fires on western National Forests suggest the possibilities of closing National Forest areas to hunters, according to the Portland headquarters of the United States Forest Service.



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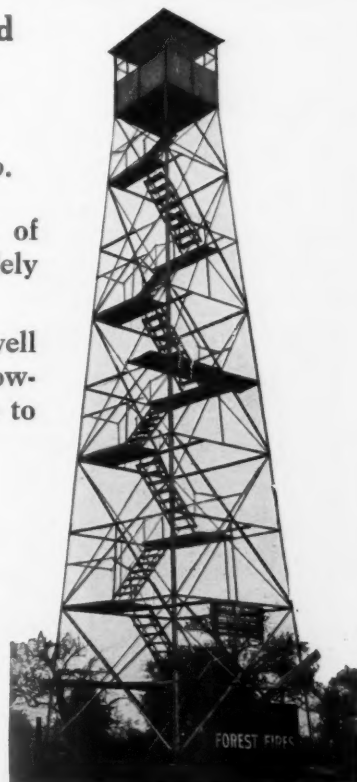
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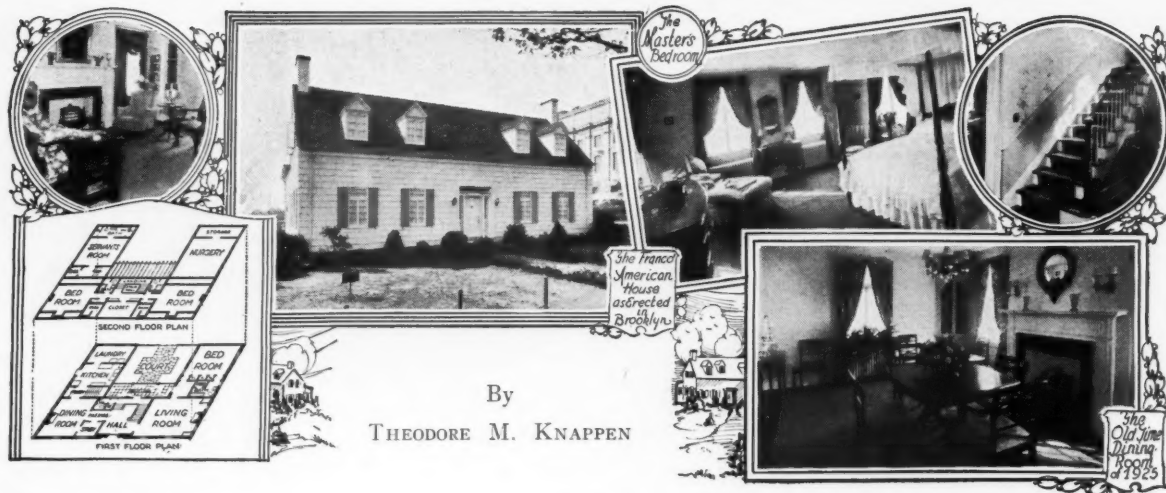
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FROM AMERICA TO FRANCE!



By
THEODORE M. KNAPPEN

THE people of France are soon to have an opportunity to see a typical American frame dwelling house, of American architecture—the colonial of the eighteenth century—furnished in the best American taste and equipped with American plumbing, lighting, electrical appliances and all the mechanical modernities that make housekeeping in the United States utterly unlike what it is in Europe—almost magical.

The American Committee of the Exhibition of Household Appliances and Labor-Saving Devices which is to be held at the Grand Palais in Paris during 1926, after accepting the invitation of the French Department of Public Instruction to offer an American exhibit, decided that the best way to do it would be to erect a "100 per cent" American house

and make it characteristically American in furniture, decoration and equipment. The idea met with prompt and cordial response among those who were called upon to contribute substantially to its realization.

The house itself—appropriately of lumber construction, almost unknown in Europe—was erected and donated by Louis Bossert and Sons, Inc., mill-work manufacturers and lumber dealers, Brooklyn, New York. More than 25 other firms contributed the decorations and contents of the house all the way from paint to electrical refrigerator and percolator.

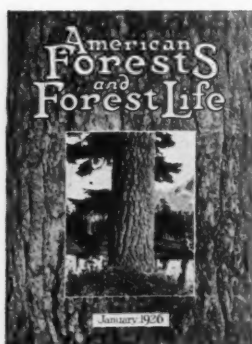
In order that the public-spirited donors might have some present public recognition of their generosity it was stipulated that the house should be first set up in Brooklyn and afterwards taken down and shipped to Paris. Erection was begun May 27,

last, at Eastern Parkway and Washington avenue, and the house was formally opened on October 7. In late November it was taken down and shipped to Paris, where the French housewives will get the surprise of their lives in February, when they will see the physical equipment of modern housekeeping for the first time. Although French home life is refined, well-ordered, and even luxurious among the wealthy, practically nothing is known in France (outside of hotels and the new apartment houses) of the wonders of American plumbing, hot and cold water distribution, kitchen equipment, heating, cleaning, lighting, refrigerating and other devices for the home. A modern American home, complete from sills to ridgepole, will be a revelation—one that is expected to result in a lively demand in France for American household goods.

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January, 1926.

Mention AMERICAN FORESTS AND FOREST LIFE—It Helps

The New Public Lands Controversy

(Continued from page 8)

tion center, a private pasture, or an industrial undertaking requiring a substantial amount of land, without liquidating the existing grazing right.

The stockmen's program provides that the "rights" shall be subject to the measures necessary for the protection of other natural resources. Presumably this means timber production and watershed protection. It is, however, proposed that any questions of dispute between holders of grazing rights and the Government shall be settled by the courts. The policy of use of the lands suited to grazing is to be based upon general *business welfare*, not upon the *public welfare*. The protection of communities, of the small rancher, of wild life, and of recreational interests shall be upon an *equitable* basis. All this means that the effective administrative control of the grazing of live stock on the National Forests is to be taken away. The Forest Service would have to go to court to prove damage to the forest or to watersheds, a thing often difficult to prove until the injury is so great as to be almost irreparable.

The program, further, urges that there be no extensions of existing National Parks or creations of new parks or game preserves in the grazing states. Those drawing the resolutions doubtless had in mind the proposals for an extension of the Crater Lake, the Yellowstone, and Grand Canyon National Parks and for the creation of the Roosevelt National Park in California and others, which would involve reducing or eliminating the present grazing privileges.

Fundamental Change of Policy Proposed

The stockmen are proposing a radical change of public policy relative to the National Forests. The one fact that should be kept definitely in mind in this controversy is that we are dealing with public reservations set aside for forest production and watersheds protection. We are not dealing with lands set aside for range control. We have to do first of all not with a problem of the range but a problem of forests and waters.

The question that must be faced by the public is in reality then whether a large portion of the National Forests shall be maintained primarily for pasturage rather than for the purposes for which they were established. I believe that the nation will answer that question in just one way.

No General Legislation Needed on National Forests

Legislation is needed to bring about the control of grazing on the public domain, in order to prevent further deterioration of the range and to restore its productivity. General legislation relating to grazing on the National Forests is not necessary. It should constantly be borne in

mind that on the latter there has been a system of regulated grazing for twenty years; on the public domain stock is run wholly without any attempt at public control. The scope of this article does not permit a discussion of the grazing problems on the present public domain and the various ways in which these may be met. The policy should be directed primarily to the service of these lands for stock raising. The National Forests, on the other hand, represent areas which have been carefully classified and designated as essential for forest production and watershed protection. They have been set aside permanently to be handled by the Government in the general public interest. Adequate authority has been lodged with the Secretary of Agriculture to meet the needs of the livestock industry so far as grazing on the National Forests is concerned. If the present regulations and procedure need modification, the Secretary has the power to change them. If there is needed a different system of appeals, that can be provided. The regulations of the Secretary have the force of law and he can proceed in contractual relations with the permittees as far as is proper without yielding the control necessary to protect basic public interests in the forests. Certainly if there have been administrative abuses or inefficiency, these can be corrected without new laws. An effort to write into law the regulations, as has been suggested by some, would in my opinion, be thoroughly unsound.

The livestock industry has been facing a very serious situation. The country should view its economic and industrial problems with great sympathy. The causes of the depression and losses of the industry are not, however, chargeable to the administration of the National Forests or the system of regulated grazing now in effect. If the circumstances justify federal aid in the way of a temporary reduction in fees, let that be provided in a specific relief measure. Every consideration of public interest points to the need of a larger federal appropriation for range improvements on the National Forests, for the development of public water supplies, for the construction of drift fences and the like. Such assistance in making the public properties of greater service does not involve the necessity for general grazing legislation, which would tend to particularize the law and very likely lead to proposals that would embarrass the administration of the forests and the livestock industry as well.

Public Interests Must Dominate

Grazing is only one use of the National Forests. The full service of the public property can be obtained only by a co-ordination of the different uses so that

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FRANKLIN MOON, Dean

one will not conflict with another. The National Forests contain many and varied natural resources. Provision is made for the development of such agricultural land as may exist, for mining, for the use of the waters for power, irrigation, and domestic use, for recreation, for the protection of wild life, and for a great number of miscellaneous uses, as well as for forest products and for grazing. The correlating of these manifold uses to obtain a maximum service of all is the objective of the Government. This is possible only if the responsible agency, in this case the Department of Agriculture, has full administrative authority over the uses of the land.

If the authority of the Government were weakened in the administration of the grazing use, it would not be long before an effort would be made to break down the efficiency of the regulations in the timber sales. Certain interested persons are even today endeavoring to show that the restrictions with reference to brush disposal are unnecessary or too rigorous, that fewer seed trees are sufficient, or that other requirements in the timber sale contracts should be changed; in short, that we should revert to the usual methods of lumbering that in my opinion should not be tolerated on Government land.

There is a great deal more than the grazing problem involved in the present controversy. The consequences of a let-down in the grazing control on our public forest areas would extend to the handling of other resources. Inefficiency would be the inevitable result and when that comes, the whole enterprise is in danger. The National Forests belong to the nation, not to any given locality or given group of industrial interests. They must be handled in the interests of the general public if the Government is to redeem the responsibility that has been placed upon it by the people of the country. The National Forests represent the greatest conservation undertaking of our history. It is unthinkable that the country would take a step backward with respect to them at this time, as would be the case if the extraordinary demands of the western stockmen were allowed.

Engineers Reaffirm Stand on Forestry

A number of strong resolutions were adopted by the Administrative Board of the American Engineering Council at its Cleveland meeting late in October. These resolutions favor the raising of the fire cooperation appropriation under the Clarke-McNary Act immediately to \$1,000,000, the granting of generous funds for National Forest purchase and adequate support of the Forest Products Laboratory at Madison as well as the regional forest experiment stations. The states are called upon to organize and strengthen the existing State Forestry Departments in order that full advantage may be taken of the cooperative features of the Clarke-McNary Act.

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